STRATEGIES FOR PRIMARY CARE PROVIDERS IN BRITISH COLUMBIA'S COMMUNITY PRIMARY CARE PRACTICE SETTINGS TO PREVENT BURNOUT

by

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Abstract

Primary care providers (PCPs) suffer from high rates of burnout. Burnout is the result of chronic workplace stress. Burnout can significantly impact the PCP's personal and professional life and can lead to devastating consequences. Literature often addresses organization level strategies to improve burnout rates but there is a dearth of literature focusing specifically on PCP-directed strategies to prevent burnout. Using Whittemore and Knafl's (2005) method for integrative literature reviews, ten articles were reviewed. Results suggest that PCPs can reduce burnout by building a strong professional community. Additionally, the results suggest that burnout may be prevented by strengthening one's personal resources via positive emotions. Recommendations for building a strong professional community and strengthening the PCP's personal resources are discussed and specific strategies PCPs can implement are presented.

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Glossary of Terms

Adrenal medulla: inner portion of adrenal gland. It stores and secretes the catecholamines epinephrine and norepinephrine. The release of catecholamines is triggered by stress, adrenocorticotropic hormone (ACTH), and glucocorticoids (Brashers et al., 2014).

Anterior pituitary: major organ of the endocrine system, makes up 75% of pituitary gland. Releases ACTH when stimulated by corticotropin-releasing hormone (Brashers et al., 2014).

Adrenal glands: organs located behind peritoneum and close to upper pole of each kidney. Consists of two separate portions—outer adrenal cortex and inner adrenal medulla (Brashers et al., 2014).

Adrenal cortex: outer portion of the adrenal gland. Cells of adrenal cortex are stimulated by ACTH. Adrenal cortex secretes several steroid hormones including glucocorticoids, mineralocorticoids, and adrenal androgens and estrogens (Brashers et al., 2014).

Adrenocorticotropic hormone (ACTH): released from anterior pituitary and the target is the adrenal cortex. Functions of ACTH include producing increased cortisol and androgen hormones and synthesis of adrenal proteins contributing to the maintenance of the adrenal gland (Clayton & McCance, 2014).

Amygdala: area in brain that deals with emotional processing. It interprets stimuli (i.e., images and sounds) and sends distress signals to hypothalamus when triggered by interpretation of stress (Bezdek & Telzer, 2017).

Chronic condition: diseases that last one or more years, require ongoing medical attention, and/or limit activities of daily living (Centres for Disease Control and Prevention, 2019).

Corticostriatial-limbic circuit: brain circuit with the principle effects of primitive behavioural responses, visceral reaction to emotion, feeding behaviours, biologic rhythms, and smell (Sugerman, 2014).

Corticotropin-releasing hormone (CRH): hormone released from hypothalamus. CRH stimulates the release of ACTH and β-endorphin. Its target is the anterior pituitary gland (Clayton & McCance, 2014).

Cortisol: glucocorticoid with major involvement in metabolic processes and the stress response (Bezdek & Telzer, 2017).

Edmonton Frail Scale: multidimensional measurement to assess frailty and fitness along a continuum, helps estimate prognosis (Edmonton Frail Scale, n.d.)

Epinephrine: catecholamine released by adrenal medulla. It stimulates all adrenergic receptors to facilitate an increase in cardiac output, bronchodilation, increased circulation free fatty-acids, increased blood glucose, and decreased glycogen synthesis (Sugerman, 2014).

Event: one or more hospitalizations due to the chronic condition or sequalae resulting from the chronic condition (i.e., a stroke caused by hypertension; Langton et al., 2020).

Glucocorticoids: steroid hormones that have direct effect on carbohydrate metabolism and can increase blood glucose concentrations. They also have metabolic, neurologic, anti-inflammatory, and growth suppressing effects. Main glucocorticoid is cortisol (Brashers et al., 2014).

Hippocampus: thought to be involved in storing memories (Godoy et al., 2018)

Hypothalamus: small area located at the base of the brain. It is considered the coordinating centre of the endocrine system. Functions include hormone synthesis, temperature regulation, feeding responses, visceral and somatic responses, physical expression of emotions, sexual behaviour, level of arousal, and affectual responses (Brashers et al., 2014).

Norepinephrine: catecholamine released by adrenal medulla. Stimulates all α-adrenergic cells, β_1-adrenergic cells, β_3-adrenergic cells, and certain β_2-adrenergic cells to cause vasoconstriction, increased blood pressure, increased sweat gland action, pupil dilation, increased arteriole smooth muscle contraction, and piloerection (Sugerman, 2014).

Pituitary gland: endocrine organ made up of anterior pituitary and posterior pituitary. It releases hormones that exert effects on parts of endocrine system (Brashers et al., 2014).

Nucleus of the accumbens: located in frontal lobe and believed to be principal site of action for addictive drugs, positive reinforcement, and reward (Sugerman, 2014).

Paraventricular nucleus of the hypothalamus (PVN): main messenger of the hypothalamic-pituitary-adrenal axis mediated stress response (Godoy et a., 2018).

Prefrontal cortex: controls thoughts and actions, including controlling emotional responses to stress by regulating the amygdala (Bezdek & Telzer, 2017)

Acknowledgment

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The highest attainable standard of health and well-being is a fundamental human right for every human being (World Health Organization [WHO], 2018). Well-being refers to one's overall physical and mental health and quality of life (WHO, 2018). It is believed that the highest level of health and well-being can be achieved through the delivery of primary health care (WHO, 2018). Primary health care incorporates quality care and accessibility with policy to empower people and their communities to improve the health inequities (Browne et al., 2015; van Wheel & Kidd, 2018; WHO, 2018). Primary care is a major component of primary health care (Government of Canada, 2012). Primary care entails health promotion, illness and injury prevention, and the diagnosing and treatment of illness and injury (Government of Canada, 2012). The delivery of primary care can be done by primary care providers (PCPs), which includes nurse practitioners (NPs) and general practitioners (GPs) or family physicians (Government of British Columbia [Gov of BC], n.d.).

Fifteen percent of Canadians do not have access to a regular PCP (Canadian Institute on Health Information, 2019; Prodan-Bhalla & Scott, 2016; Statistics Canada, 2019). Primary care providers are under significant stress to provide adequate and appropriate care to all Canadians (General Practice Services Committee [GPSC], 2019). Additionally, workplace characteristics, organizational culture, patient complexity, and patient experiences of current or past trauma can compound provider work-related stress (Branson, 2019; Knight, 2019; Sinclair et al., 2017; WHO, 2020). Provider work-related stress is the individual response one has to the pressures of work, in which their capacity to cope with stress is challenged (WHO, 2020). Various terms are used to describe the states resulting from provider work-related stress amongst the caring professions, including burnout, compassion fatigue, secondary traumatic stress, and vicarious traumatization (Branson, 2019; Knight, 2019). Burnout,

secondary traumatic stress, compassion fatigue, and vicarious traumatization are all important topics, but because of the high rates of burnout in health care providers and the profound effects on the PCP's health, personal and professional life, and patient care, this integrated literature review will focus specifically on PCP burnout (Bridgeman et al., 2018; Chow et al., 2018; Lall et al., 2019; Maslach & Leiter, 2016; West et al., 2018).

Burnout is a response to workplace characteristics and environmental stressors experienced by health care providers (Okoli et al., 2019; Sinclair et al., 2017; Zhang et al., 2018). Workplace stressors and characteristics that contribute to burnout include a perceived heavy patient load, complex patients, and limited support (Goetz et al., 2018; Okoli at al., 2019). Burnout is characterized by negative changes in one's attitude and behaviour (Sinclair et al., 2017; Zhang et al., 2018). Burnout exists on a continuum ranging from emotional exhaustion to cynicism, depersonalization, and decreased personal accomplishment (Bridgeman et al., 2018). As such, burnout can hinder the PCP's ability to provide safe patient care (Bridgeman et al., 2018). Furthermore, burnout is the result of a chronic stress response and can significantly impact the PCP's health and well-being (Chow et al., 2018; Lall et al., 2019; Maslach & Leiter, 2016; West et al., 2018). Figure 1 shows the impact stress can have on a PCP.

To ensure PCP mental, emotional, and physical health is maintained, burnout must be prevented. The purpose of this paper is to answer the question: What strategies can be implemented by PCPs in British Columbia's community primary care practice settings to prevent burnout?

Chapter One will present the background and context related to the research question beginning with an examination of burnout. Related terminology is clarified, and the etiology,

manifestations, and consequences of burnout are explained. In Chapter Two, the methods section will describe how the integrative literature review was conducted. In Chapter Three, findings will be presented and analyzed, and limitations of the paper will be discussed. Chapter Four will present the discussion in which the findings are synthesized, and recommendations presented.

CHAPTER I: BACKGROUND AND CONTEXT

In this chapter, each element of the research question "What strategies can be implemented by PCPs in British Columbia's community primary care practice settings to prevent burnout?" is explored, and their background and context are presented. To begin, types of PCPs are defined and primary care practice characteristics in British Columbia (BC) are explored. The physiological response caused by stress is detailed and the consequences of stress are examined. Subsequently, burnout is defined, and its risk factors and consequences are discussed. Burnout measurement tools are then reviewed, prevention is defined, and levels of prevention are explored in the context of burnout.

Primary Care Providers

Primary care providers are often the first contact patients have with the Canadian health care system (Gov of BC, n.d.). Nurse practitioners are licensed advanced practice nurses who have completed graduate level academic education, clinical experience, and practice as autonomous health care providers (Canadian Nurses Association [CNA], 2020; Nurses and Nurse Practitioners of British Columbia, n.d.). General practitioners and family physicians are individuals who have graduated from medical school and completed clinical training (i.e., a residency) in family medicine (Statistics Canada, 2018). Primary care providers can work in similar practice settings (CNA, 2020; Statistics Canada, 2018) providing autonomous patient care and completing practice-related tasks (British Columbia College of Nurses and Midwives [BCCNM], 2017; Canadian Medical Association [CMA], 2019; Prodan-Bhalla & Scott, 2016); therefore, this integrative literature review (ILR) considers studies whose sample included GPs or family physicians to be applicable to all PCPs. Henceforth, the term PCP will be utilized when referring to NPs, GPs, and/or family

physicians. The following section will illustrate how PCPs deliver primary health care within diverse practice settings. Additionally, the following section will depict PCP practice characteristics and describe how the PCP's time can be divided between direct patient care and other tasks.

Primary care providers play an important role in delivering accessible, quality health care that empowers people and their communities (WHO, 2018). Primary care providers provide primary health care to people of all ages and backgrounds, from individuals with no medical problems to those with multiple chronic medical conditions (Gov of BC, n.d.; Langton et al., 2020). All PCPs can autonomously assess, diagnose, and treat illnesses; order and interpret tests; prescribe medications; perform medical procedures; and refer or consult with other practitioners (CNA, 2020; Statistics Canada, 2018). Additionally, they provide counselling and support to individuals and their families to improve their lifestyle and overall health and manage chronic diseases while also recognizing how illness impacts the individual and their family (CNA, 2020; Statistics Canada, 2018). Primary care providers often work together to provide a team-based approach that enhances patient care (CNA, 2020; GPSC, 2019; Hoff et al., 2019).

In BC, PCPs can work in diverse community settings including remote, rural, small town, urban, or inner-city areas, private practice, community health centres, primary care clinics, and other settings (CMA, 2019; Work BC, 2020). In addition to providing direct patient care, time is typically divided between many activities, including indirect patient care (i.e., documenting, phone calls, results review, family meetings), administrative tasks, managing practice, and continuing education (BCCNM, 2017; CMA, 2019; Prodan-Bhalla &

Scott, 2016). According to Rotenstein et al. (2018), increased time with patients is positively associated with provider mental well-being.

Primary care providers have input into their own work schedule, self-directing their appointments to benefit the PCP and patient needs (Divisions of Family Practice, 2018; Doctors of BC, n.d.; Health Match BC, n.d.). However, there are factors in the PCP work environment that are unpredictable (Divisions of Family Practice, 2020). For example, a patient may present with an acute condition or in crisis and need more time than initially scheduled. The PCP must provide appropriate care, but this can interrupt workflow, and create both time pressure and a perceived lack of control for the PCP while causing frustration for patients in the waiting room (Sherwin et al., 2013). Consequently, such factors can be an additional source of provider work-related stress (Maslach & Leiter, 2008; Sherwin et al., 2013)

Primary Care Practice Characteristics in British Columbia

According to Langton et al. (2020), there are four distinct patient population groups in BC: low need (82%), multiple morbidities (13%), medically complex (3%), and frail (2%). A patient with low needs has one or fewer chronic conditions and no event indicating medical complexity. A patient with multiple morbidities is an individual with two or more chronic conditions, which may or may not interact with each other, and no event indicating medical complexity (Langton et al., 2020; Whitson et al., 2020). On the other hand, comorbidities refer to conditions that coexist in the environment of a primary disease (Whitson et al., 2020). Medically complex patients are those with one or more chronic conditions who have had an event, as defined in the glossary, associated with the chronic condition. Lastly, frail patients are those who are 65 or older, have been deemed palliative, are receiving frailty-

based care, and/or have met at least two criteria of the Edmonton Frailty Scale (Langton et al., 2020). While many PCPs in BC have patient distributions that mirror the above patient population groups, others do not (Delvin et al., 2018). For example, Canadian NPs often work with underserviced patient populations who have complex health conditions and social needs (Delvin et al., 2018). More than 60% of BC's population has at least one chronic disease and it is estimated that, in BC, one million new patients will be diagnosed with the top five chronic diseases (depression, hypertension, osteoarthritis, diabetes, and asthma) by 2036 (Prodan-Bhalla & Scott, 2016; Wister et al., 2019).

In response to Canada's aging population, increases in patients who have chronic conditions, and increased health care costs, the provincial governments and regional health authorities have attempted to reform primary care (Peckham et al., 2018). Peckham et al. (2018) report that, while PCPs deliver most of Canada's primary care, they have largely been excluded from conversations regarding changes to the delivery of primary care. The British Columbia Nurse Practitioner Association (now Nurses and Nurse Practitioners of British Columbia) acknowledged efforts to improve primary health care but have continued to advocate that all health disciplines should be involved in BC's health care reform discussions (Prodan-Bhalla & Scott, 2016). Additionally, the Doctors of BC (2015) question how physicians, as PCPs, will be able to effectively voice their concerns and participate in driving changes.

Changes suggested to improve primary care delivery include team-based primary care, continuity of care, accessible after-hours primary care, usage of information and communications technology, and health-system reorganization (Peckham et al., 2018). The goal of these changes is to improve access and attachment to primary care while maximizing

the PCP time and capacity (GPSC, 2019). Patient attachment is often used as a quality indicator of health care systems; however, increased access, longitudinal care, quality patient encounters, and health outcomes are also significant indicators of a successful and robust health care system (Prodan-Bhalla & Scott, 2016). Team-based care increases access to clinical supports, such as the PCP, specialists, social workers, occupational therapists, physiotherapists, pharmacists, and other clinical and non-clinical providers (GPSC, 2019). This enables ongoing, comprehensive patient care (GPSC, 2019; Prodan-Bhalla & Scott, 2016). Prodan-Bhalla and Scott (2016) explain that, with team-based care, there is an increased understanding of the individual patient and population because of the diverse perspectives incorporated within the team. Accessible after-hours primary care in BC is being facilitated through Urgent and Primary Care Centres (UPCC) that provide timely primary care services, and that also form an alternative to using an Emergency Room for concerns that do not need immediate medical attention (HealthLink BC, 2020). The UPCCs are more readily available in large areas where a higher percentage of the population is unable to obtain a regular PCP (HealthLink BC, 2020).

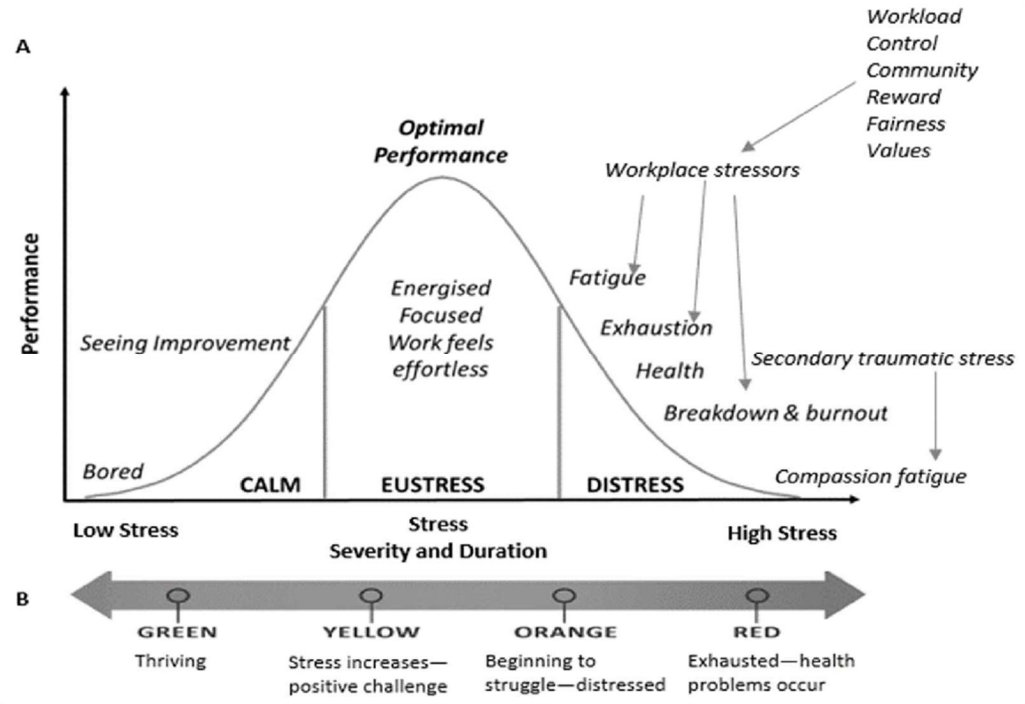
Along with increased access to primary care services, the use of information and communications technology has been implemented through the use Electronic Medical Records (EMR; Peckham et al., 2018). It is thought that EMRs can improve communication between primary care and other clinicians and areas of the health system (i.e., hospital, diagnostics, specialists, long-term care, community care); however, in BC each health region uses different electronic systems and EMRs (Peckham et al., 2018). Additionally, PCPs and clinicians who all provide care to a given patient may each use different EMRs, and therefore

patient notes from the PCP cannot always be accessed and viewed by other health care providers (Peckham et al., 2018).

Currently, 15% of Canadians do not have a regular PCP, with rural populations having significantly less access to primary health care services (Canadian Institute on Health Information, 2019; Prodan-Bhalla & Scott, 2016; Statistics Canada, 2019). As such, there is a significant amount of pressure on hospitals and PCPs to provide care (GPSC, 2019). This pressure can add to a PCP's work-related stress (GPSC, 2019). Moreover, work-related stress

Figure 1

Stress Continuum Model



Note. Panel A: Stress performance curve. Adapted from *Physician Stress, Burnout, & Performance,* D. Drummond, 2015, TheHappyMD. (https://www.thehappymd.com/blog/physician-burnout-stress-and-performance-video-training). Copyright 2015 by The HappyMD. Adapted with permission. Panel B: The stress continuum model. Adapted from "US Marine Corps and Navy Combat and Operational Stress Continuum Model: A Tool for Leaders," by W. P. Nash, in E. C. Ritchie (Ed.), *Combat and Operational Behavioral Health* (p. 115), 2011, Borden Institute. In the public domain.

and chronic stress can have detrimental effects on the PCP's personal and professional life (Clayton & McCance, 2014; West et al., 2018). Figure 1 illustrates the effects of stress on PCP well-being. The following discussion will describe the effects of chronic stress and illustrates how stress can cause physical, emotional, and mental pathology.

Stress and the Physiological Response

Stress is the biological response humans have to threatening or potentially harmful stimuli and it is fundamental to survival (Godoy et al., 2018; Yaribeygi et al., 2017). Stress can be caused by physical, emotional, or psychological stimuli (Godoy et al., 2018; Yaribeygi et al., 2017). There are multiple factors that influence how an individual perceives and processes stress including the type of stimuli, the individual's personality, neuroanatomy, availability of internal resources, emotional state, and physiologic condition (Clayton & McCance, 2014; Godoy et al., 2018; Sinha, 2008).

Neuroanatomy of Stress

The stress response begins in the brain and involves the prefrontal cortex (PFC), amygdala, hippocampus, paraventricular nucleus of the hypothalamus (PVN), ventral tegmental area, and the nucleus accumbens as illustrated in Figure 2 (Godoy et al., 2018). These regions are connected directly via neuron projections or indirectly via neurotransmitters (Godoy et al., 2018; Sugerman, 2014). When the brain perceives stressful stimuli, it rapidly interprets the stimuli as a real or potential threat and activates the body's physiologic responses to help the person adapt in an attempt to re-achieve homeostasis (Clayton & McCance, 2014; Sinha, 2008; Yaribeygi et al., 2017).

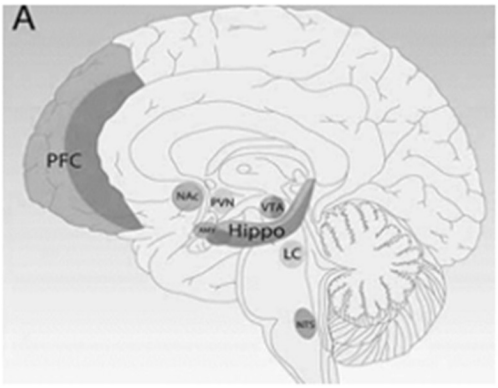
The PVN receives stress signals via projections from nociceptive, visceral, humoral, or sensory pathways and is the controller of the signals (Godoy et al., 2018). The PVN has

neurons that send signals to autonomic targets in the brainstem (i.e., to the nucleus of the solitary tract), spinal cord, and median eminence (Godoy et al., 2018). The autonomic nervous system (ANS) acts as an information transfer system because it transfers information bidirectionally between the brain and body (Gianoros & Jennings, 2018).

Sugerman (2014) explains that the ANS is part of the peripheral nervous system (PNS). The PNS consists of the cranial and spinal nerves. Afferent pathways carry messages to the central nervous system (i.e., brain and spinal cord). Efferent pathways carry messages from the central nervous system to effector organs and glands. Effector organs are organs that are innervated by the nervous system. Effector organ cells have adrenergic receptors, mainly α-adrenergic or β-adrenergic receptors. The ANS coordinates and regulates the body's visceral organs. It is divided into the sympathetic nervous system (SNS) and parasympathetic

Figure 2

Neuroanatomy of Stress



PFC: Prefrontal cortex
NAc: Nucleus accumbens
PVN: Paraventricular nucleus of hypothalamus
AMY: Amygdala
Hippo: Hippocampus
VTA: Ventral tegmental area
LC: Locus coeruleus
NTS: Nucleus of the solitary tract

Note. The neuroanatomical structures responsible for the stress response. From "Neurobiology of Stress, Concepts and Implications," by L. D. Godoy, M. T. Rossignoli, P. Delfino-Pereira, N. Garcia-Cairasco, & E. H. L. Umeoka, 2018, *Frontiers in Behavioral Neuroscience*, 12, Article 127, p. 4 (https://doi.org/10.3389/fnbeh.2018.00127). CC BY 4.0.

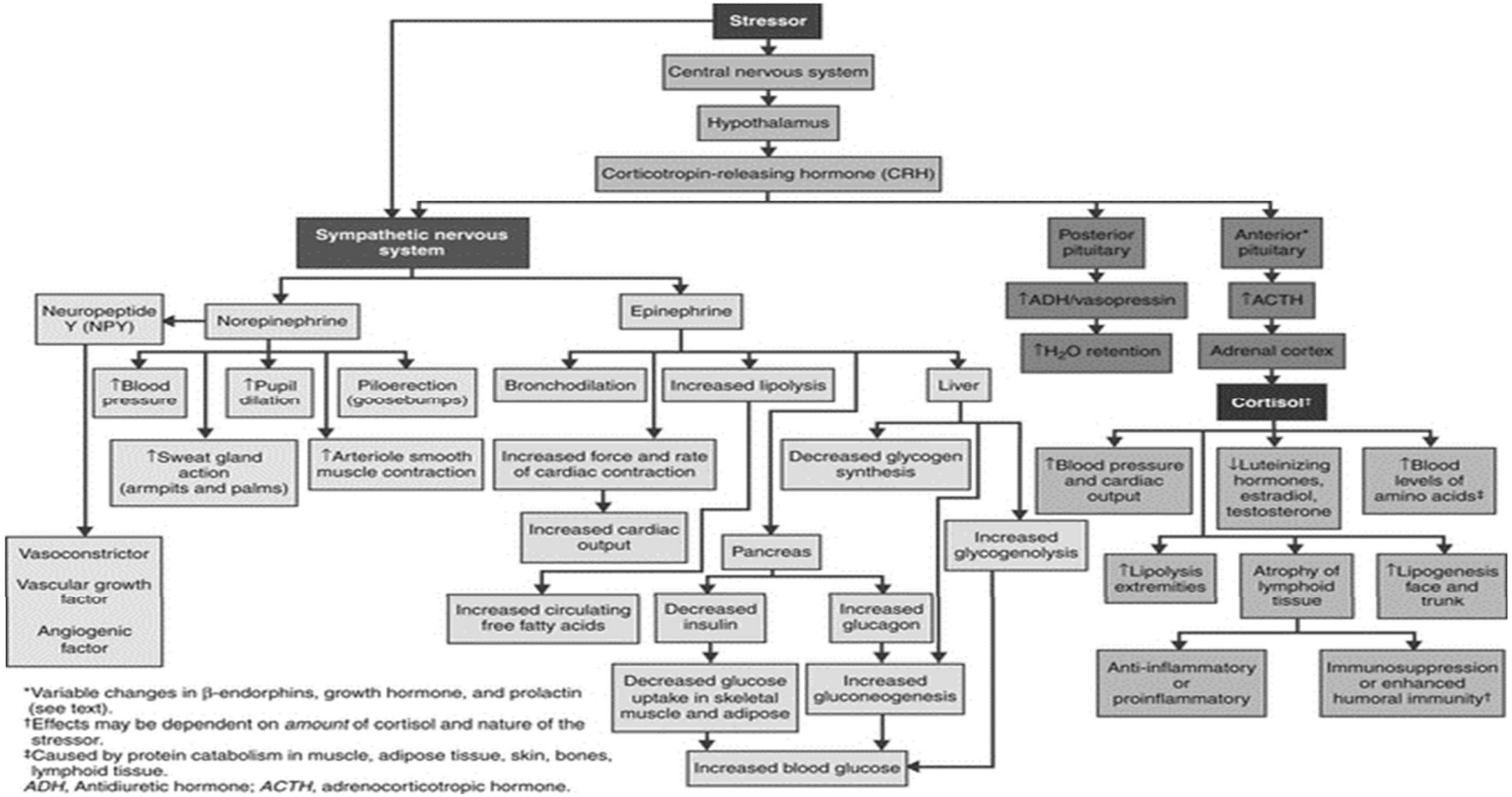
nervous system. The SNS mobilizes energy during stress or times of need while the parasympathetic nervous system's role is to restore and conserve energy. After the PVN receives a stress signal it activates pathways in the SNS and pituitary gland to produce a stress response (Clayton & McCance, 2014; Godoy et al., 2018).

The Stress Response

A stress response causes increased cortisol and catecholamine levels, which in turn elevate one's heart rate, respiration rate, and blood pressure, allowing the individual to quickly meet short term challenges (Sinclair et al., 2017). Stress can be a positive in that overcoming challenging stimuli can give one a sense of capability and accomplishment (Yaribeygi et al., 2017). Conversely, stress can also be detrimental both physically and psychologically if it continues over extended periods and one is not able to overcome the stimuli (Clayton & McCance, 2014; Sinclair et al., 2017; Strahler et al., 2014). The stress response involves complex biochemical relationships between the central nervous system, autonomic nervous system, immune system, and endocrine system as outlined in Figure 3 (Clayton & McCance, 2014; Cohen et al., 2007; Yaribeygi et al., 2017). The two main stress pathways are the sympathetic-adrenal-medullary (SAM) system and the hypothalamic-pituitary-adrenal (HPA) axis (Clayton & McCance, 2014; Cohen et al., 2007; Sinha, 2008). The SAM system produces a short-term stress response—what is often referred to as the "fight or flight" response whereas the HPA axis regulates both short-term and long-term or chronic stress (Clayton & McCance, 2014; Godoy et al., 2018). The vast effects of the stress response are depicted in Figure 3.

Figure 3

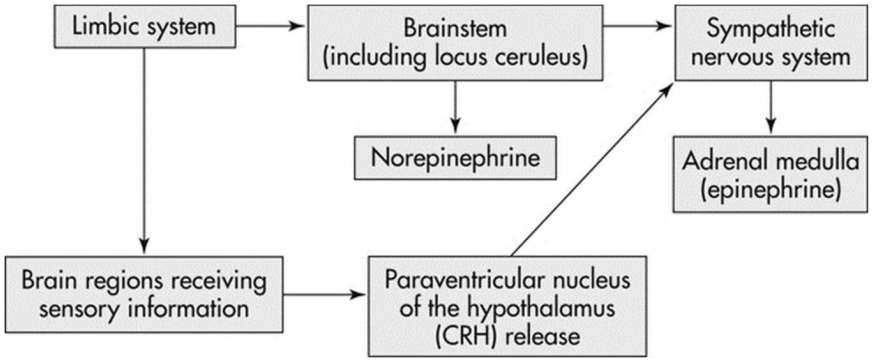
The Stress Response



Note. From "Stress and Disease," by M. F. Clayton and K. L. McCance, (2014). In K. L. McCance and S. E. Huether (Eds.), *Pathophysiology: The biologic basis for disease in adults and children* (7th ed., p. 340), Elsevier. Copyright 2014 by Elsevier. Reprinted under STM Guidelines

Figure 4

Activation of the Sympathetic-Adrenal-Medullary System



Note. From "Stress and disease," by M. F. Clayton and K. L. McCance, (2014). In K. L. McCance and S. E. Huether (Eds.), *Pathophysiology: The biologic basis for disease in adults and children* (7th ed., p. 339), Elsevier. Copyright 2014 by Elsevier. Reprinted under STM Guidelines.

Sympathetic-Adrenal-Medullary System

The SAM system is aroused during the stress response as illustrated in Figure 4 (Clayton & McCance, 2014; Sinha, 2008; Yaribeygi et al., 2017). The SAM system is mediated by catecholamines to produce rapid physiologic adaptation to stress (Godoy et al., 2018). When one experiences stress, the sympathetic nervous system (SNS) causes the adrenal medulla to release catecholamines of which 80% is epinephrine and 20% is norepinephrine (Clayton & McCance, 2014). Epinephrine and norepinephrine circulate in the blood to produce effects on the cardiovascular, pulmonary, skeletal muscle, immune, and hepatic systems to regain homeostasis (Clayton & McCance, 2014; Cohen et al., 2007; Godoy et al., 2018; Yaribeygi et al., 2017).

The result of SAM activation and the release of epinephrine and norepinephrine is increased strength of heart contraction, increased blood pressure, increased cardiac output, increased blood flow to muscles, increased blood sugar, increased lactic acid, and release of free fatty acids (Sugerman, 2014). A visceral feedback loop maintains the reciprocal

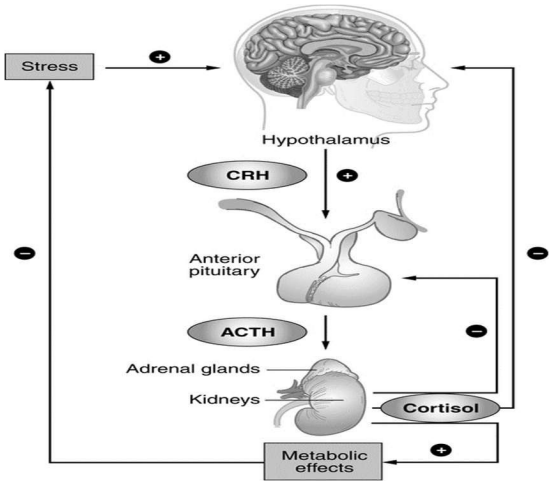
relationship between blood pressure and heartbeat during homeostasis (Gianoros & Jennings, 2018). During periods of stress however, the relationship is modified and both blood pressure and heartbeat are increased (Gianoros & Jennings, 2018). This can lead to decreased sensitivity to the visceral feedback loop and result in metabolically inappropriate changes (Gianoros & Jennings, 2018). In other words, overactivity of the SNS from chronic stress and the consequent increased catecholamine production can cause prolonged vasoconstriction and elevated heart rate contributing to chronic hypertension (Cunningham et al., 2014). Additionally, the increased activity of the SNS can also lead to increased insulin resistance, endothelial dysfunction, the promotion of vascular remodeling and procoagulant effects (Cunningham et al., 2014). Together, the endothelial dysfunction, vascular remodeling, and procoagulant effects contribute to narrowing of blood vessels, thus increasing the risk of vasospasm, thrombosis, and cardiovascular events (Clayton & McCance, 2014; Cunningham et al., 2014; Yaribeygi et al., 2017). Consequently, chronic stress can trigger hypertension and cardiovascular disease, increasing one's risk of coronary artery disease, stroke, and dysrhythmias (Clayton & McCance, 2014; Cunningham et al., 2014; Yaribeygi et al., 2017).

Hypothalamic-Pituitary-Adrenal Axis

The main effector of the HPA axis activation is cortisol (Cohen et al., 2007). As seen in Figure 5, when we experience stress, the hypothalamus secretes corticotropin-releasing hormone (CRH) which binds to receptors on the anterior pituitary and stimulates adrenocorticotropic hormone (ACTH; Clayton & McCance, 2014; Cohen et al., 2007; Sinha, 2008). ACTH is transported through the bloodstream and binds to receptors on the adrenal glands, prompting the secretion of the glucocorticoid hormones, primarily cortisol (Clayton & McCance, 2014; Cohen et al., 2007; Sinha, 2008). Cortisol initiates an array of metabolic

Figure 5

Hypothalamic-Pituitary-Adrenal Axis



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changes to help the body cope with stress (Clayton & McCance, 2014; Cohen et al., 2007; Sinha, 2008). Cortisol's metabolic effects include the simultaneous inhibition of the use of glucose, amino acids, lipids, and fatty acids, and the promotion of their formation; thus, cortisol promotes the mobilization of glucose, amino acids, lipids, and fatty acids into the bloodstream (Clayton & McCance, 2014; Cohen et al., 2007).

Chronic dysregulation of the HPA axis, from chronic stress, results in increased cortisol levels (Clayton & McCance, 2014; Takahashi, 2014; Yaribeygi et al., 2017). It is believed that chronic HPA hormone secretion contributes to the pathophysiology of depression because increased cortisol secretion is found in many suffering with major depression (Takahashi, 2014). The HPA system also activates the immune system which can produce the secretion of proinflammatory cytokines, some of which cause further secretion of cortisol (Takahashi, 2014). Persistently elevated cortisol levels may give rise to

immunosuppression and compromise the body's immune systems (Takahashi, 2014). High cortisol levels are associated with systemic inflammation, immune system dysfunction, obesity, sleep abnormalities, dyslipidemia, hypertension, diabetes mellitus, atherosclerosis, and lower bone density, and cognitive decline (Clayton & McCance, 2014; Strahler et al., 2014).

Mood, Behavioural, and Cognitive Changes Due to Stress

Chronic stress can cause changes in one's long-term or permanent behavioural and emotional responses (Ansell et al., 2012; Clayton & McCance, 2014; Yaribeygi et al., 2017). As levels of emotional and psychological stress increase, there is a decrease in one's ability to control their behaviour, resulting in increased impulsivity and a heightened risk of adopting maladaptive behaviours to cope (Cohen et al., 2007; Sinha, 2008). Furthermore, maladaptive behaviours such as smoking, decreased adherence to medical regimens, substance use, and decreased sleep and exercise can all influence one's disease risk (Cohen et al., 2007).

Chronic stress can cause structural and functional changes within the corticostriatal-limbic circuitry, especially within the prefrontal cortex (Ansell et al., 2012; Clayton & McCance, 2014; Godoy et al., 2018). Over-exposure to stressors or chronic stress can decrease dendritic complexity in the hippocampus and PFC while the dendritic density is increased in the amygdala and nucleus accumbens; this increases the excitatory tone and the depleting inhibitory tone which have been associated with anxious behaviours (Godoy et al., 2018). Corticostriatal-limbic circuit dysfunction can play a critical role in the development of mood, anxiety, and behavioural disorders (Ansell et al., 2012; Godoy et al., 2018). The damaged PFC and hippocampal structures are associated with deficits in learning (Godoy et

al., 2018). Increased levels of stress can cause a decline in prefrontal functioning resulting in decreased behavioural and cognitive control (Godoy et al., 2018; Sinha, 2008). Thus, exposure to stress can precipitate pathophysiologic changes in the brain's structure and function and these changes can manifest as mood, cognitive, or behavioural disorders (Ansell et al., 2012; Clayton & McCance, 2014; Godoy et al., 2018; Sinha, 2008; Yaribeygi et al., 2017).

Burnout

The term burnout was originally used to describe the emotional and psychological strain experienced by staff providing health care in free clinics in the 1970s, attributed to the inability to meet patient needs with clinic resources (Lall et al., 2019; Rotenstein et al., 2018). The definition of burnout has evolved over time and various characterizations of the components of burnout have been suggested (Rotenstein et al., 2018). In 2019, the WHO provided a more concrete definition and burnout is now included in the International Classification of Diseases (ICD-11). Burnout is an occupational phenomenon that results from chronic workplace stress (WHO, 2019). For the purpose of this paper, the WHO (2019) definition of burnout will be used.

Burnout is characterized by three domains that exist on a continuum: emotional exhaustion, depersonalization or cynicism, and low sense of personal accomplishment or professional efficacy (Grow et al., 2019; Rotenstein et al., 2018; WHO, 2019). Emotional exhaustion describes how one's emotional reserves have been consumed by the mental and physical stress of one's job (Grow et al., 2019). In other words, one may feel "used up" by the end of the day, with nothing left to emotionally give patients (West et al., 2018). Depersonalization encompasses the negative changes in behaviour and attitude, such as

feelings of cynicism, detachment from others, and a decreased capacity for empathy (Grow et al., 2019; Sinclair et al., 2017; Zhang et al., 2018). Depersonalization can cause the PCP to become callous and treat the patient as an object rather than a human being (West et al., 2018). The negative attitudes and behaviours evolve over time and can result in distorted self-evaluation, feelings of incompetence, job dissatisfaction, and a decreased sense of personal accomplishment because of feeling ineffective in providing patient care (Grow et al., 2019; West et al., 2018; WHO, 2019; Zhang et al., 2018). Feelings of powerlessness and frustration develop over the inability to meet work goals because of imbalance in work life areas (Okoli et al., 2019; Sinclair et al., 2017; Zhang et al., 2018). Suicidal ideation strongly correlates with each domain of burnout (Shanafelt et al., 2011). Notably, for each 1-point higher score in the emotional exhaustion and depersonalization domains, or for each 1-point lower in the personal accomplishment domain, in physicians there is a 6%-10% increase in suicidal ideation (Shanafelt et al., 2011; Dyrbye et al., 2019). Figure 1 shows the stress continuum, and the negative impact that chronic and high stress can have.

Resilience

Resilience is the process of adapting effectively when faced with significant sources of stress or adversity (American Psychological Association [APA], 2012). Resilience is a process that anyone can learn and develop because it involves aspects of one's life that, with practice, they can control and modify—thoughts, behaviours, and actions (APA, 2012). Increasing one's resilience takes time and intentionality (APA, 2012). It is believed that one can increase their resilience by focusing on the four core components of resilience: connections, wellness, meaning, and healthy thinking (APA, 2012).

Connections refer to having a strong support network of people who offer support, understanding, and empathy (APA, 2012). Wellness encompasses caring for, and strengthening, one's body through nutrition, sleep, hydration, and exercise and avoiding negative outlets and poor coping behaviours. This enables the body to adapt to stress more readily and can decrease the toll of emotions. Meaning or finding purpose enables the individual to be proactive in solving problems and setting and achieving goals. A strong sense of meaning can increase one's sense of self-worth and increase their appreciation for life. Healthy thinking allows the individual to find perspective in difficult situations, accept change, develop an optimistic outlook, and learn from their past. Meaning and healthy thinking are strongly associated with emotion regulation (McGonagle et al., 2020; Zhao et al., 2019).

Emotion Regulation Impact on Stress

Burnout is associated with personal emotions (Zhao et al., 2019). Emotion-regulation ability is a dimension of emotional intelligence that reflects one's capacity to effectively manage their emotions (Zhao et al., 2019). Those with high emotion-regulation ability are thought to experience more positive affect and less negative affect (Zhao et al., 2019). Affect is the experience of any feeling, mood, or emotion (APA, n.d.-a). Affect can range from simple to very complex sensations, from joy to suffering (APA, n.d.-a). Negative affect is the feeling experienced when one faces failure, cannot avoid a threat, or is not satisfied with their present circumstances (APA, n.d.-b). By contrast, positive affect is the feeling experienced when goals are achieved, threats are avoided, or one is satisfied with their present circumstance (APA, n.d.-c). Positive affect incorporates emotions like joy, interest, and contentment, and enables individuals to make higher level connections and broaden how they

think (McGonagle et al., 2020). Conversely, frequent negative emotions can narrow one's focus (Fredrickson, 2008; McGonagle et al., 2020). Moreover, positive affect correlates negatively with burnout while negative affect correlates positively with burnout (Zhao et al., 2019).

It is thought that those with high emotion-regulation ability are able to use their personal resources to manage their emotions at work (Zhao et al., 2019). Personal resources help individuals effectively meet life's challenges and can empower individuals to overcome stressors (Fredrickson, 2008; McGonagle et al., 2020). Personal resources can be cognitive, psychological, social, or physical (Fredrickson, 2008). Cognitive resources can include the ability to be mindfully present or to problem solve (Fredrickson, 2008). Psychological resources involve one's sense of ownership over their own life and self-efficacy (Fredrickson, 2008; McGonagle et al., 2020). Social resources encompass one's ability to give and accept support (Fredrickson, 2008). Finally, physical resources involve one's ability to overcome challenges that affect the body (Fredrickson, 2008). Enduring personal resources help build resilience and can be drawn upon to meet life's challenges, including work-related stress (McGonagle et al., 2020).

Coping

Sometimes, the negative emotions caused by stress can exceeds one's resources (APA, n.d.-d). Coping strategies are then needed to reduce the negative emotions. Coping can include thoughts, like emotion regulation, and behaviours to deal with stress. Behaviours can be positive and adaptive or negative and maladaptive (APA, n.d.-e). Examples of positive or adaptive behaviours are exercise or meditation while examples of negative or maladaptive behaviours are alcohol use or recreational substance use (APA, n.d.-e).

Resilience helps individuals effectively adapt to stressful situations while coping strategies help reduce stress when stress exceeds the individual's resources. There are several work life factors that can increase stress and the PCP's risk of burnout (Maslach & Leiter, 2008).

Primary Care Provider Burnout Risk Factors

According to Maslach and Leiter (2008), there are six interconnected areas of work life that are deemed to be risk factors in the development of burnout. Workload, control, reward, community, fairness, and values are the six main areas of the work environment that can cause burnout when there is an imbalance (Maslach & Leiter, 2008). The interventions discussed in Chapter Three will identify which burnout risk factor, or factors, the intervention aimed to improve.

Workload

Workload refers to one's job demands (Maslach & Leiter, 2008). Workload can refer to the challenges of clinical work, patient load, complex patients, or time constraints exceeding one's limits (Bridgeman et al., 2018; Loeb et al., 2016; Maslach & Leiter, 2008; Ritchie et al., 2018). Overload occurs when work exhausts one's capacity to meet the demands of the job (Maslach & Leiter, 2008). On one hand, overload can hinder one's ability to provide quality health care and meet workplace goals; consequently, feelings of tension and pressure develop, and workplace stress occurs (Bridgeman et al., 2018; Ritchie et al., 2018). However, if the PCP has time to rest, recover, and restore balance after a short period of overload, burnout can be avoided (Maslach & Leiter, 2008). Furthermore, viable workloads can provide the PCP with opportunities to become proficient in existing skill sets and to develop aptitude in new areas (Maslach & Leiter, 2008).

Control

Control refers to personal control in the workplace (Maslach & Leiter, 2008). Lack of control has been directly linked to burnout (Maslach & Leiter, 2016). As measures are attempted to improve health care efficiency and costs, the PCP may have minimal input into organizational decisions and restructuring efforts (Bridgeman et al., 2018). As stated earlier, PCPs have felt that they have largely been left out of conversations of health care reform in BC (Peckham et al., 2018). Cost-saving measures may not align with the values that drew the PCP to the profession or do not contribute meaningfully to patient care can result in further stress (Grow et a. 2019; West et al., 2018). For example, cost-saving changes may be made to medication or therapy coverage, meaning that previously effective treatments are no longer covered. Another example of lack of control in BC health care involves wait times (Barua & Moir, 2019). Wait times for diagnostics, procedures, surgery, or specialist consultations can be long and cause undue pain and stress, sometimes irreversibly impacting patient outcomes (Barua & Moir, 2019). Obviously, this lack of control can be distressing for the PCP and can contribute to the exhaustion aspect of burnout (Maslach & Leiter, 2008). Conversely, active participation in workplace decisions can lower exhaustion levels and improve self-efficacy (Maslach & Leiter, 2008).

Reward

Reward represents both compensation and recognition of one's behaviours and actions in the workplace setting (Maslach & Leiter, 2008). Lack of recognition from patients, colleagues, or institutions can devalue the PCP's contribution, making the PCP's work and PCP themselves feel unimportant (Bridgeman et al., 2018; Maslach & Leiter, 2016). This can add to feelings of inefficiency (Bridgeman et al., 2018; Maslach & Leiter, 2016). Conversely,

meaningful recognition positively correlates with lower levels of burnout (Kim et al., 2020). Meaningful recognition can improve self-esteem, feelings of self-efficacy, and resilience and increase the PCP's feeling of being valued by the organization (Lefton, 2012). Meaningful recognition is the acknowledgement of the impact one's behaviours and actions have had (Lefton, 2012). Meaningful recognition should parallel the PCP's contribution and should be pertinent to the situation (Lefton, 2012).

Community

Community refers to the quality of the PCP's work social network, which includes coworkers, peers, and supervisors (Maslach & Leiter, 2008). Relationships with colleagues are important to maintain professional support and can improve feelings of accomplishment and self-efficacy (Grow et al., 2019; Maslach & Leiter, 2008). Lack of support from colleagues and the organization can contribute to the emotional exhaustion and depersonalization domains of burnout (Bridgeman et al., 2018; Maslach & Leiter, 2008; West et al., 2018).

Fairness

Fairness is discussed in relation to the justice and equity of decisions made in the work environment (Maslach & Leiter, 2008). Bridgeman et al. (2018) report that injustice for patients (i.e., not having access to timely care or insufficient time to spend with complex patients) is exhausting and discouraging for the PCP. Maslach and Leiter (2016) add that perceived unfairness can increase cynicism, hostility, and anger for the PCP. On the contrary, perceived support and fairness can be a protective factor against burnout (Maslach & Leiter, 2008).

Values

Values are described as the cognitive-emotional influences of one's goals and expectations of their job (Maslach & Leiter, 2008). Values are often seen as a motivator that initially attracts the PCP to their job and helps to form the connection between the workplace and their job (Maslach & Leiter, 2008). When the values and ideals of the PCP and organization align, it boosts self-efficacy (Maslach & Leiter, 2008).

Viewing the six work life areas in this respect demonstrates the confluence of factors that can contribute to PCP burnout (Grow et al., 2019). There is an increased risk of burnout as the imbalance between these areas push the PCP to spend less time on satisfying aspects of work (Grow et al., 2019). Burnout is the result of severe, chronic stress relative to one's own emotional reserves (Grow et al., 2019; Lall et al., 2019). In fact, chronic stress can significantly impact physical, emotional, and mental well-being (Clayton & McCance, 2014).

Consequences of Burnout

Burnout can have consequences for PCPs, their patients, and the entire health care system (West et al., 2018). While burnout shares similar symptoms with job dissatisfaction, fatigue, and depression, it is distinct (Grow et al., 2019; West et al., 2018). For example, emotional exhaustion can both be present in burnout and depression, but depersonalization and feelings of low personal accomplishment can be absent in depression (West et al., 2018). The relationship between burnout and health is complex; poor health can contribute to burnout and burnout can contribute to poor health (Maslach & Leiter, 2016).

Individuals suffering from burnout report memory and concentration problems, gastrointestinal issues, hypertension, sleep disturbances, fatigue, irritability, and anxiety (Chow et al., 2018; Maslach & Leiter, 2016). Additionally, burnout is associated with an

increased risk of alcohol use disorder, suicidal ideation, motor vehicle collisions, near-miss events (West et al., 2018), substance use disorder, personal relationship difficulties, and depression (Lall et al., 2019). These symptoms parallel symptoms resulting from prolonged stress (Maslach & Leiter, 2016).

It is imperative that PCPs understand how to prevent burnout. It has been difficult to determine burnout's precise pathologic process that produces physiologic dysfunction (Chow et al., 2018). This is due, in part, to previous research using various scales and criteria to assess and define burnout (Rotenstein et al., 2018). Since burnout is now in the ICD-11 and the WHO (2019) has provided a more concrete definition of this term, future burnout research will likely be more homogenous and the pathologic process between burnout and its physiologic response is more likely to be found.

Burnout Measurement

In the systematic review on the prevalence of burnout by Rotenstein et al. (2018), they explain that several different burnout measures are used, with a variety of scores used to determine if one was suffering from burnout. The most common scale used in burnout studies of is the Maslach Burnout Inventory (MBI), with the MBI Human Services Scale (MBI-HSS) specifically made for those working in human services like health care. The validity of the MBI-HSS is questioned as it may not accurately distinguish symptoms caused by work-related stress versus personal-life related stress. The MBI-HSS considers burnout to be the direct consequence of human-relations induced stress. Moreover, the MBI-HSS assesses burnout symptoms together with coping strategies; therefore, it may not accurately represent burnout as a singular occupational phenomenon.

Maslach and Leiter (2016) counter that it is important to understand that occupational and individual factors can impact the risk of burnout. Conversely, a burnout measurement that uses personal risk factors may pathologize one's emotional responses to their job (Rotenstein et al., 2018). The Copenhagen Burnout Inventory (CBI) was developed as a free alternative to the MBI as an attempt to avoid the aforementioned problems and cost of the MBI-HSS (Kristensen et al., 2005; Rotenstein et al., 2018). Through their review, Rotenstein et al. (2018) found the CBI to be the most reliable scale to assess burnout and recommended using it; however, it has not yet been validated in a North American audience.

It is important to be aware of some of the more common burnout measures as they will be used to assess the effectiveness of burnout prevention strategies. The MBI-HSS involves 22 questions in the domains of emotional exhaustion, depersonalization, and personal accomplishments (Olson et al., 2019). Seven-point scales are used to determine the frequency of symptoms within the three domains and scores are used to establish burnout (Olson et al., 2019). The score range of emotional exhaustion is from 0 to 54, depersonalization is from 0 to 30, while the personal accomplishment score range is 0 to 48 (Dyrbye et al., 2019). The higher the score in emotional exhaustion and depersonalization, the more severe the burnout symptoms (Dyrbye et al., 2019). A lower score in personal accomplishment indicates greater burnout symptoms (Dyrbye et al., 2019). The MBI-HSS costs $15 for an individual to take the survey (Mind Garden, 2019).

The American Medical Association (AMA; 2020) recommends using the Mini-Z burnout assessment. It is a free tool that uses 10 items to assess the PCP's stress, burnout, EMR use and proficiency, work control, time pressure, values, and satisfaction (AMA,

2020). Olson et al. (2019) report that the Mini-Z is a valid method to identify risk factors associated with burnout.

Prevention

Prevention, as it relates to health and well-being, is taking action to stop or minimize health effects from illness, disease, or injury from happening (WHO, 2020). For example, prevention of burnout would stop both the stress response and the detrimental effects of the stress response from occurring. There are three levels of health prevention: primary, secondary, and tertiary (Fletcher, 2020). Primary prevention aims to stop health effects from arising by taking measures to mitigate its causes (Fletcher, 2020). Types of primary prevention can include immunization, behavioural therapy, efforts to improve health and lifestyle, prophylactic surgery, and community awareness campaigns (Fletcher, 2020). McWilliams (2019) reported that increased resilience and improving work environments to be less stressful are examples of the primary prevention of burnout. Secondary prevention is utilized to detect disease early so that treatments may be able to stop it from progressing (Fletcher, 2020). Cervical cancer screening and human immunodeficiency virus (HIV) testing are both examples of secondary prevention (Fletcher, 2020). Using a burnout measurement or inventory to screen for burnout symptoms is also a type of secondary prevention (McWilliams, 2019). Lastly, tertiary prevention are actions taken to prevent deterioration or prevent complications of the disease (Fletcher, 2020). For example, diabetic patients are encouraged to have routine ophthalmological exams to prevent diabetic retinopathy (Fletcher, 2020). McWilliams (2019) explains that, in relation to burnout, tertiary prevention is utilized to improve circumstances; prevent deterioration of personal and

professional relationships; and prevent the development of severe depression, substance use disorder, and suicidal ideation.

It is also important to acknowledge that some factors are not in the PCP's control when discussing burnout prevention. A perceived lack of control is a risk factor for burnout (Bridgeman et al., 2018; Maslach & Leiter, 2016). For instance, patients act on their own volition and PCPs cannot control patient behaviours. Additionally, improving one's work environment, such as choice of EMR, organizational structure, or distribution of patient complexity, is not always realistic. Improving work environment factors represent examples of organization-directed interventions. Organization-directed interventions are outside the scope of this ILR. Therefore, this paper will focus on prevention strategies that the individual PCP can utilize to prevent burnout and minimize its effect. These strategies refer to individual interventions.

CHAPTER II: METHODS

Research reviews should meet the same standards and methodological rigour as primary research (Whittemore & Knafl, 2005). Integrative literature reviews are the most comprehensive type of research review (Whittemore & Knafl, 2005). Integrative literature reviews include all research (both experimental and non-experimental), research with a wide range of purposes, and theoretical and empirical literature. This allows for a fulsome understanding of the topic (Whittemore & Knafl, 2005).

Integrative Literature Review

This paper follows Whittemore and Knafl's (2005) methodological approach to conducting an ILR. The five steps involved in conducting an ILR are: 1) identify the problem; 2) literature search; 3) data evaluation; 4) data analysis; and 5) presentation.

Literature Search Stage

Whittemore and Knafl (2005) explain the importance of completing a well-defined and thorough search strategy. This search strategy will prevent a biased, incomplete, and inaccurate integrative review. Search strategies of computerized databases can be limited by the search words and the database; as such, thorough documentation of the search strategy can help confirm that a complete, unbiased, and accurate search was completed.

Inclusion and Exclusion Criteria

To begin the literature search, inclusion and exclusion criteria were applied in order to support identification of a comprehensive collection of literature for analysis (see Table 1). A timeline of 2010-2020 was chosen because, in 2010, influential research was conducted to illustrate the extent of burnout among physicians (Shanafelt et al., 2012). Since then, there

has been more research conducted to understand the impact of PCP well-being on personal, patient, and systemic outcomes (CMA, 2018).

Table 1

Inclusion and Exclusion Criteria for Selection of Research Articles

Inclusion Criteria	Exclusion Criteria	Rationale
Published between 2010-2020	Published prior to 2010	To reflect the most current applicable data.
Peer reviewed	Not peer reviewed, opinion pieces	Avoids non-scientific journals and unverified strategies
Full text	Full text cannot be obtained	Accessibility
Studies about primary care providers	Studies about specialty care areas and other health care workers	To reflect research question accurately
Studies focused on prevention of burnout	Studies focused on other types of workplace stress or stress affecting health care providers	To reflect the research question accurately by focusing on prevention
Published in English	Published in any language other than English	Limited resources to translate articles within the time and constraints of the final project

Search

To begin the literature search, five healthcare-oriented databases were chosen: The Cumulative Index to Nursing and Allied Health (CINAHL), Medline, PsycINFO, PubMed, and the Cochrane Database of System Reviews. The databases were chosen to provide a comprehensive compilation of literature that spanned across all aspects of health care, biomedical, and psychological literature. They facilitated the collection of relevant academic literature pertinent to the research question. These databases were accessed via the University

of Northern British Columbia's library. To ensure all applicable articles were identified, a search of grey literature was also conducted via Google.

Each database was searched using the terms found in the Table 2. Medical Subject Headings (MeSH) were used to ensure the proper vocabulary was used to identify all relevant content. The Boolean operator "AND" was used to combine these terms.

Table 2

Keyword Search Terms

Keywords	
Burnout Prevention	Primary care provider or family physician or general practitioner or nurse practitioner
MeSH Terms	
Burnout, Professional + prevention and control/therapy	"Physicians, Primary Care" OR "Nurse Practitioners" OR "Family Nurse Practitioners" OR "General Practitioners"

Filters were applied to incorporate the inclusion and exclusion criteria, limiting findings to relevant English articles within the chosen date range. Results of the filtered searches were saved in an EBSCOhost file. The article title and abstracts were then reviewed for relevance. Literature that focused on all aspects of burnout prevention—primary, secondary, and tertiary prevention, were selected. Literature that focused on individual strategies that a PCP could utilize were chosen rather than organizational strategies. Articles focused on PCPs working within Canadian and then North American settings were chosen preferentially, but studies from Australia and Europe were also included because, globally, health care providers have similar values—compassion, respect, integrity, excellence, and justice (Rider et al., 2014); therefore, studies conducted outside of North America were included. The search is depicted

by a literature search flow diagram in Appendix A. In total, six primary studies and two systematic reviews were included in this IRL.

Data Evaluation

The data evaluation stage involves evaluating the quality of the articles (Whittemore & Knafl, 2005). The strength, validity, and rigour of each study were each assessed using the Joanna Briggs Institute (JBI) critical appraisal tools (JBI, 2020). The JBI scores are provided in the literature matrix (Appendix B).

Data Analysis

The goal of data analysis is to critically analyze the articles, develop an unbiased interpretation of the research, and synthesize the evidence (Whittemore & Knafl, 2005). To achieve this, the data is reviewed, organized, and summarized to present a consolidated conclusion to answer the research question. Data analysis consists of data reduction, data display, data comparison, conclusion drawing, and verification.

Data Reduction

Data reduction involves organizing the data into subthemes (Whittemore & Knafl, 2005). The articles of this review are organized by study type. Factors that affect burnout in primary care were extracted and emerging themes regarding the prevention of burnout were identified.

Data Display

Key elements of each paper were detailed and displayed in the literature review matrix (see Appendix B). This included the study's purpose, sampling, strengths and weaknesses, key points, and JBI rating. This organization allows for comparison of the studies.

Data Comparison

The next step in data analysis is data comparison (Whittemore & Knafl, 2005). Examining the literature review matrix allows for patterns, themes, and differences within the data to emerge.

Conclusion Drawing and Verification

The final stage of data analysis is conclusion drawing and verification (Whittemore & Knafl, 2005). The patterns, themes, and differences identified in data comparison are verified for accuracy and confirmability with the primary source data. Finally, a summary of the important details is presented to answer the research question.

Whittemore and Knafl's (2005) methodological approach enabled clear and organized data collection, evaluation, analysis, and presentation. Two themes for individual burnout interventions emerged from the data analysis: enhancing job competencies and emotion regulation interventions. In-depth data analysis of these themes and findings are presented in the following chapter.

CHAPTER THREE: FINDINGS

This ILR was conducted to examine strategies to reduce and prevent burnout for PCPs working in British Columbia's community primary care practice settings. The analysis was guided by the research question: What strategies can be implemented by PCPs in British Columbia's community primary care practice settings to prevent burnout? Chapter Two described the search methods, and the subsequent search produced eight relevant articles. This chapter will present the findings of the eight articles.

Overall, the included studies predominantly focused on physicians working in primary care; however, this ILR also considered studies whose sample included GPs or family physicians as being applicable to all PCPs because of similar practice settings and tasks (BCCNM, 2017; CNA, 2020; Prodan-Bhalla & Scott, 2016; Statistics Canada, 2018). Of the eight articles selected for this review, six were primary studies (Barcons et al., 2019; Fortney et al., 2013; McGonagle et al., 2020; Rees et al., 2020; Verweij et al., 2016; West et al., 2014), and two were systematic reviews (Panagioti et al., 2017; Wiederhold et al.,2018). The primary studies used quasi- experimental, randomized control trial (RCT), and cross-sectional analysis methods to develop data. Sample sizes ranged from 13 participants to 45 participants in intervention groups. All of the studies measured burnout, in addition to other outcomes, to determine the effectiveness of the intervention. Some studies also measured the individual domains of burnout. Various burnout measurement scales were used including the MBI (Barcons et al., 2019; Fortney et al., 2013; McGonagle et al., 2020; West et al., 2013), 10-item Burnout Measure Short Version (Rees et al., 2020), and the Utrecht Burnout Scale for Contactual Occupations (Verweij et al., 2016). A small subset of the studies used mixed methods to

collect quantitative and qualitative data. Qualitative data was collected through recorded interviews and surveys. Directly comparing studies is challenging because the studies used different interventions, various measurement scales and domains of burnout, few used a control group, and sample sizes varied greatly.

Three of the primary studies included in this ILR were conducted in the United States of America (USA; Fortney et al., 2013; McGonagle et al., 2020; West et al., 2013). Single studies were conducted in each Spain (Barcons et al., 2019), the Netherlands (Verweij et al., 2016), and Australia (Rees at al., 2020). One of the systematic reviews did not specify what countries the included studies were from (Wiederhold et al., 2018). The other systematic review (Panagioti et al., 2017) was comprised of 11% of studies from Canada, 42% from USA, 16% from Australia, 11% from Spain, and 5% from each the Netherlands, Belgium, Israel, and Argentina. Across the globe, health care providers have similar values—compassion, respect, integrity, excellence, and justice (Rider et al., 2014); therefore, studies conducted outside of North America were included.

Overall, the Joanna Briggs Institute (JBI) ratings for the primary studies were moderate to high. The JBI ratings for the two systematic reviews were high (Panagioti et al., 2017; Wiederhold et al., 2018). Detailed information on each paper's methodology, sampling, data analysis, key findings, strengths, limitations, and JBI checklist and score is provided in the literature matrix in Appendix B.

Three types of individual intervention strategies for burnout prevention emerged in the literature: 1) enhancing job competencies that are related to burnout risk factors; 2) strategies to increase the individual's resilience; and 3) increased coping skills. Some strategies described in the literature resulted from a combination of these three. The six main

work life risk factors that influence burnout are workload, control, reward, community, fairness, and values. The findings are presented in the following section. The interventions and their findings are summarized in Table 3 and Appendix B.

Enhancing Job Competencies Interventions

Interventions aimed at enhancing job competencies seek to improve proficiencies in the PCP's practice that are thought to impact burnout risk factors (Barcons et al., 2019; West et al., 2014). These interventions aimed to improve competencies related to communication, collaboration, or difficult diagnoses and patient management (Barcons et al., 2019; West et al., 2014). Poor communication skills can negatively affect the PCP's relationships with patients (Barcons et al., 2019). As such, poor communication can negatively impact the burnout risk factors of workload (Maslach & Leiter, 2016) and reward (Kim et al., 2020). For example, the PCP may not be able to effectively communicate their workload limit, resulting in overload (Maslach & Leiter, 2016). Poor communication with patients may prevent a positive relationship from forming and the PCP may experience a lack of self-efficacy or feel devalued by the lack of meaningful recognition (Kim et al., 2020; Maslach & Leiter, 2016). Similarly, weakness in communication can negatively impact collegiality between colleagues and hinder their collaboration (Barcons et al., 2019; Kim et al., 2020; West et al., 2014). Collaboration is also related to reward as it may represent how peers and colleagues value the PCP (Maslach & Leiter, 2016). Furthermore, peer support and relationships with colleagues improve self-efficacy and the burnout risk factor of community (Maslach & Leiter, 2016).

Difficulty diagnosing and managing common primary care patient presentations, like mental health disorders, can affect feelings of personal efficacy and workload (Barcons et al., 2019). Challenges related to workload can exhaust the PCP's capacity to meet their job's

demands, thereby increasing the risk of burnout (Maslach & Leiter, 2008). As described, weaknesses in communication, collaboration, and diagnosing or managing common primary care patient presentations impact burnout risk factors of community, reward, and workload (Barcons et al., 2019; West et al., 2014). Therefore, the aim of improving these competencies is to reduce the risk of burnout (Barcons et al., 2019; West et al., 2014)

Barcons et al. (2019) used a team-based multimodal training program to provide education on related subjects experienced in primary care practice. The program included education on communication, collaboration, and improving the diagnosis and management of mental health disorders. Similar programs had been effective at improving mental health conditions across diverse patient populations; thus, it was thought that the methodology could help burnout in physicians practicing in primary care practice settings. The effects of the intervention were measured using the Maslach Burnout Inventory (MBI). See Table 3 and Appendix B for result details. The authors found there was no significant change in overall burnout or any of the three burnout domains for the PCPs. Similarly, the systematic review by Wiederhold et al. (2018) found that improving communication skills was not effective at reducing burnout.

A slightly different approach to an educational intervention was taken by West et al. (2014). The aim of this study was to assess if the intervention improved collegiality, community, and meaning in work and decrease burnout through facilitated discussion groups (West et al., 2014). To reiterate, a strong support network at work can improve feelings of self-efficacy while a lack of support can increase the PCP's risk of burnout (Maslach & Leiter, 2008). West et al. (2014) used discussion groups to provide education that incorporated mindfulness, reflection, shared experience, and learning with topics of meaning

in work, personal and professional balance, medical mistakes, community, caring for patients, and other topics affecting physicians. The authors also used the MBI to measure the effects of the intervention on burnout. The authors did not provide the MBI scores, but rather reported percentages of participants within the control and experimental groups having high emotional exhaustion and depersonalization, and overall burnout. See Table 3 and Appendix B for full result details. The experimental group had small reductions in emotional exhaustion and overall burnout and large reductions in depersonalization compared to the control group. These results were sustained at 12-months post-intervention. Compared to the non-trial cohort, burnout rates dropped substantially in the experimental group, and slightly in the control group. The findings suggest that, while small improvements to burnout were found in participants who received protected unstructured time, the benefits of the small-group curriculum on depersonalization and overall burnout were greater and the results were sustained 12 months after the intervention had concluded.

Interestingly, the results of the two educational interventions were mixed. Contributing factors that may have led to the mixed findings are described below. Educational interventions often use predetermined curriculum to achieve standardized goals (McGonagle et al., 2020). For example, Barcons et al. (2019) used a structured multimodal training program to provide instruction combined with skill acquisition and psychoeducational group activities to offer methods on improving competencies for patients with mental health disorders, improving communication with patients and colleagues, and managing their own burnout and psychological well-being. On the other hand, West et al. (2014) used a less structured approach to combine skill acquisition with community building. Facilitated discussion groups were conducted to share experiences on complex

cases, provide peer perspective, and discuss stress management in hopes of promoting community and learning (West et al., 2014). Comparably, support group meetings for healthcare providers, in which participants can share in a non-judgmental environment, have also been shown to reduce emotional exhaustion in a systematic review (Wiederhold et al., 2018). It is difficult to directly compare the educational interventions as both the curriculum and mode of delivery differed between the studies. Barcons et al. (2019) used a quasi-experimental approach and rated higher on a JBI critical appraisal than West et al.'s (2014) randomized control trial. Both interventions aimed to enhance job competencies, but one focused on skills mostly involving patient care (Barcons et al., 2019) while the other focused on skills concerning PCP personal care and community (West et al., 2014). Furthermore, Maslach and Leiter (2016) reported that active participation in decision making (i.e., choosing to participate in discussion group) has been shown to decrease burnout risk while a lack of control is associated with increased burnout risk (i.e., compulsory education). The results of the studies could also be related to feelings of control or lack of control. The literature suggests that participating in the sharing of activities in a non-judgmental forum can help reduce emotional exhaustion and consequently burnout.

Interventions to Improve Well-Being

The remaining primary studies applied interventions that used strategies to improve the PCP's well-being through increased resilience, improved coping, or a combination of both (Fortney et al., 2013; McGonagle et al., 2020; Rees et al., 2020; Verweij et al., 2016). Overall physical and mental health and quality of life represent well-being (WHO, 2018). Preparing the PCP's mind and body to overcome stress and adversity (i.e., resilience), thereby enabling the PCP to reduce stress (i.e., coping) and maintain their overall good

health, all involve strategies to improve one's well-being (APA, 2012). Strategies to increase resilience and coping used various techniques to increase awareness as a means to promote emotion regulation (McGonagle et al., 2020; Rees et al., 2020; Verweij et al., 2016; West et al., 2014), decrease stress (Fortney et al., 2013) and promote overall well-being. Coaching (McGonagle et al., 2020) and mindfulness-based techniques (Fortney et al., 2013; Rees et al., 2020; Verweij et al., 2016) were used as the interventions.

Increased awareness allows PCPs to recognize their thoughts, emotions, and behaviours (Verweij et al., 2016). Training that focuses on challenging negative emotions can help decrease negative affect and improve positive affect (Wiederhold et al., 2018). In other words, training that focuses on changing dysfunctional behaviours, thought patterns, and emotions is thought to increase positive emotions (APA, 2017; Wiederhold et al., 2018). In turn, positive affect can increase one's personal resources. Personal resources are built through frequent positive thoughts, emotions, and action patterns (McGonagle et al., 2020). As discussed earlier, positive affect negatively correlates to burnout (Zhao et al., 2019) and personal resources can increase resiliency, enabling one manage stress effectively (Fredrickson, 2008; McGonagle et al., 2020).

In addition to increasing positive emotion, personal resources, and resilience (McGonagle et al., 2020), increased awareness allows the recognition of dysfunctional behaviours (Verweij et al., 2016). Recognizing dysfunctional behaviours increases the PCP's ability to make positive changes to those behaviours (Verweij et al., 2016) and increase their well-being (McGonagle et al., 2020). Positive behaviours can help the PCP cope with stress (APA, n.d.-e).

Coaching

Coaching interventions aim to help participants attain personal or professional outcomes through an individualized, collaborative, future-focused, and goal-focused systematic approach (McGonagle et al., 2020). McGonagle et al. (2020) used a positive coaching method to build positive emotion, engagement, positive relationships, meaning, and achievement. Coaching was performed using a one-on-one format and the agenda of the sessions was driven by the individual client (McGonagle et al., 2020). Compared to standardized educational training, coaching allowed the sessions to serve the client's individual needs regarding their personal growth and development (McGonagle et al., 2020). Additionally, McGonagle et al. (2020) speculate that a one-on-one setting facilitates more awareness and growth, as well as deeper reflection, since the participants may be less concerned about their image than in a group setting.

Participants in the McGonagle et al. (2020) study were primary care physicians who volunteered to be involved in the study. See Appendix B for further details on the study methods. The MBI was used to examine the effect of the intervention on burnout rates. The individual domains of burnout were not addressed and the total MBI scores were not provided; instead, the results were detailed after statistical analysis. Of note, the control group had much higher job satisfaction than the experimental group at baseline. Burnout rates decreased significantly after the coaching intervention and remained stable at the 6-months post-intervention follow-up. See Table 3 for results.

In their systematic review, Wiederhold et al. (2018), report that counselling was effective at reducing emotional exhaustion. The counselling interventions included similar themes as the coaching intervention, but the sessions were led by a psychiatrist (Wiederhold

et al., 2018). Coaching and counselling also differ in approaches as counselling intends to examine the root cause of certain behaviours while coaching focuses on changing behaviours (McGonagle et al., 2020). On the other hand, both coaching and counselling can be delivered in a one-on-one and non-judgmental setting (McGonagle et al., 2020; Wiederhold et al., 2018). A strong sense of support may develop between the participants and coach or psychiatrist. A strong support network can help reduce emotional exhaustion and increase one's sense of community (Maslach & Leiter, 2008).

In summary, coaching can help modify participant behaviours to promote well-being, personal growth, and personal resources; consequently, the PCP is better equipped to manage stress effectively and burnout is reduced. Furthermore, coaching seems to reduce emotional exhaustion by enhancing the PCP's support network and sense of community.

Mindfulness-Based Techniques

Mindfulness is a type of mental training that can improve one's ability to be present, non-judgmental, and non-reactive and can empower an individual to think with awareness, clarity, and compassion (Fortney et al., 2013; Verweij et al., 2016). Mindfulness originates from Buddhist meditation tradition (Wiederhold et al., 2018) and has been shown to increase one's positive emotions (McGonagle et al., 2020). Mindfulness was introduced in the Western medical setting in the 1970s to help patients suffering the stress of chronic and somatic illnesses (Fortney et al., 2013; Verweij et al., 2016; Wiederhold et al., 2018). In addition, previous research has shown that mindfulness can be effective in reducing stress and burnout and improving positive affect in healthcare workers (Fortney et al., 2013; Rees et al., 2020; Verweij et al., 2016; Wiederhold et al., 2018).). Three primary studies utilized different mindfulness-based interventions to determine its effect in reducing burnout(Fortney

et al., 2013; Rees et al., 2020; Verweij et al., 2016). The methods of each of these studies varied; see Appendix B for details on study methods. However, the aim of all of the mindfulness-based techniques were similar: to be present; to be aware of their own pleasant and unpleasant thoughts, feelings, and behaviours; to be non-judgmental; and to be compassionate (Fortney et al., 2013; Rees et al., 2020; Verweij et al., 2016).

Overall, the mindfulness-based interventions produced mixed results in their effectiveness at reducing burnout in PCPs. Both mindfulness-based stress reduction (MBSR) programs resulted in significant improvements to depersonalization on burnout measurement scales (Fortney et al., 2013; Verweij et al., 2016). The abbreviated MBSR intervention also reported a significant decrease in emotional exhaustion and an increase in personal accomplishment scores, which were sustained at a 9-month post-intervention follow-up (Fortney et al., 2013), while the full-length MBSR program did not produce improvements to the emotional exhaustion or personal accomplishment domains of burnout (Verweij et al., 2016). Meanwhile, the results of the mindful self-care and resiliency (MSCR) intervention were mixed with 57% of participants having improved burnout scores and 43% having worsening burnout scores (Rees et al., 2020). Small but meaningful improvements to burnout scores after mindfulness interventions are described in the systematic reviews on burnout interventions (Panagioti et al., 2017; Wiederhold et al., 2018).

The mindfulness-based interventions that incorporated qualitative findings reported that participants had increased awareness, self-reflection, relaxation, self-care, and well-being (Rees et al., 2020; Verweij et al., 2016). Improved awareness included being conscious of bodily sensations, thoughts, and emotions and recognition of mindlessness (Verweij et al., 2016). Furthermore, Verweij et al. (2016) reported that increased awareness enabled

participants to recognize their behavioural patterns. Mindfulness also enhanced their capacity to change behavioural patterns and make positive changes for themselves, including coping skills through increased rest and self-care (Verweij et al., 2016). Positive changes were also reflected in the work setting as the participant's ability to set limits, expand acceptance and compassion toward others (Verweij et al., 2016), and improve communication with patients and colleagues (Rees et al., 2020) all increased. In relation to the burnout risk factors, these changes improve the workload, reward and community risk factors. The results of the mindfulness-based techniques are slightly varied but demonstrate that mindfulness can be a useful strategy in reducing burnout. Randomized control studies are needed to determine the best delivery length and method for those programs.

The primary studies analyzed in this ILR showed promising results in the prevention of burnout in PCP. This chapter has detailed the interventions and their results in regard to burnout. With the exception of the multimodal training program (Barcons et al., 2019), all interventions (including facilitated small discussion groups, coaching, and mindfulness-based interventions) demonstrated modest results in decreasing burnout (Fortney et al., 2013; McGonagle et al., 2020; Rees et al., 2020; Verweij et al., 2016; West et al., 2014). As evidenced by the results summarized in Table 3, it is difficult to directly compare interventions between studies because various methods were used to analyze burnout and report the findings.

Table 3 *Summary of Intervention Results on Burnout +/- the Domains of Burnout*

Intervention	Burnout Domain	Baseline		Post-intervention		Follow-up	
		Control	Exp	Control	Exp	Control	Exp
MTP (Barcons et al., 2019) Exp N=20 Control N=18	EE[a]	24.50	19.50	25.5 (+1)	21.5 (+1)	N/A	
	DP	7	6	9 (+2)	7 (+1)		
	PA	38	38	38 (0)	37.5 (+0.5)		
	BO	46.60	37	46 (-0.6)	40 (+3)		
Facilitated Discussion Groups (West et al., 2014) Exp N=37 Control n=37	EE[a]	34.3 % with high EE	45.9 % with high EE	-4.0	-24.7	-7.8 (3mo); -16.1 (12mo)	-16.5 (3mo); -19.4 (12mo)
	DP	25.7 % with high DP	24.3 % with high DP	+1.6	-15.5	+0.8 (3mo); -1.5 (12mo)	-15.5 (3mo); -9.6 (12mo)
	BO	42.9 % BO	54.1 % BO	-6.5	-24.7	-7.6 (3mo); -15.6 (12mo)	-24.7 (3mo); -21.7 (12mo)
(McGonagle et al., 2020) Exp N=29 Control N=3	BO[a]	2.37	2.32	2.45	2.10		2.08 (3mo); 2.08 (6mo)
Abbreviated MBSR (Fortney et al., 2013) N=30	EE[a]		31.9		28.9		26.4 (8wks); 26.0 (9mo)
	DP		12.6		11.2		10.3 (8wks); 9.1 (9mo)
	PA		38.5		41.0		41.6 (8wks); 42.3 (9mo)
MBSR (Verweij et al., 2016) Exp N=43 Control N=20	EE[b]	12.44	13.17	12.11	12.57	N/A	
	DP	4.41	5.43	5.22	4.82		
	PA	33.95	33.85	34.54	35.00		
MSCR (Rees et al., 2020) N=13	BO[c]	N/A	3.2	N/A	3.04	N/A	

Note. [a] MBI. [b]Utrecht Burnout Scale for Contactual Occupations. [c]Burnout Measure—Short Version. EE=emotional exhaustion; DP=depersonalization; PA=personal accomplishment; BO=burnout.

CHAPTER FOUR: DISCUSSION

Findings from this ILR demonstrate promising strategies to lessen PCP's risk of burnout. However, there is a paucity of literature on strategies for PCP to implement to prevent burnout. The literature is lacking randomized control trials, rigorous studies, and direct comparisons of interventions and results. The systematic review by Panagioti et al. (2017) reported that the content of individual-directed interventions was irrelevant; however, this ILR has found that some strategies appear more effective than others in the prevention and reduction of burnout for PCP in the community setting. In the following sections, strategies will be discussed in terms of levels of prevention. To reiterate, in burnout, prevention includes the actions taken to stop the stress response or minimize the detrimental effects of the stress response.

Primary Prevention

Primary prevention aims to stop health effects of burnout from developing by taking measures to relieve its causes (Fletcher, 2020). Developing and strengthening one's personal resources to improve capacity to deal with and overcome stress is one strategy found in this ILR. Education to improve PCP competence in work-related skills is another type of effective primary prevention strategy evident in this ILR.

Enduring personal resources can help PCPs to meet routine challenges and overcome stressors, in effect to prevent chronic stress from building. Subsequent to having improved ability to overcome stressors, PCPs with enduring personal resources are then able to enhance their positive affect. For example, if the PCP is able to effectively manage a stressful situation, they may increase their positive affect because they have avoided the threat of

stress. Similarly, positive affect can increase one's ability to think broadly and problem solve, thus improving one's ability to effectively manage stressors. Furthermore, McGonagle et al. (2020) postulated that improving and building personal resources improves can lead to changes in work behaviours like more effective coping, which in turn can reduce burnout. It is thought that these types of interventions allow the participants to change their thought and behavioural patterns to more positive thoughts, emotions, and behaviours; thus, employing a broad perspective and enduring personal resources (McGonagle et al., 2020).

Mindfulness and coaching interventions both attempted to enhance the PCP's personal resources. Mindfulness training can improve one's positive affect and ability to think and act with awareness, compassion, clarity, and without judgement (Fortney et al., 2013; McGonagle et al., 2020; Rees et al., 2020; Verweij et al., 2016). Improved awareness allows the PCP to recognize limits in their work life (i.e., importance of breaks or need to schedule patients in a way that is effective for both patient and PCP) and in their personal life (i.e., importance of self-care). Thinking and acting with self-compassion and without judgement allows a PCP to set limits and to learn from mistakes (Rees et al., 2020; Verweij et al., 2016). In turn, self-awareness and self-compassion can allow the PCP to rest, recover, and restore balance before facing the next stressor, thus preventing emotional exhaustion and burnout from occurring. This relates to the workload risk factor of burnout.

As mindfulness is a type of mental exercise, it can take time and practice to become and continue to be competent (Fortney et al., 2013; Verweij et al., 2016). Therefore, mindfulness training should be offered regularly as part of PCP training and continuing education. As PCPs are required to complete a certain amount of continuing education credits each year, offering a mindfulness-based course that would satisfy a number of credits, such

as in the Verweij et al. (2016) study, would allow the PCP to improve or maintain their mindfulness skills while earning continuing education credits.

A different type of primary burnout prevention is related to self-efficacy. Lacking confidence or competence in work-related skills can negatively impact the PCP's self-efficacy (Barcons et al., 2019; West et al., 2014); therefore, improving those skills through education can improve self-efficacy and may prevent burnout. It appears that the way in which education is delivered can impact its effectiveness. If participants feel that the education is done more in service of improving the organization, rather than the participant, there can be ambivalence and resistance to the curriculum (McGonagle et al., 2020). Allowing the PCP to choose continuing education curriculum to fit their competency needs would improve participation and buy-in, and in turn improve the acceptance of the education. As a result, competencies would improve and may cause increased self-efficacy and hence, the prevention of burnout.

Coaching involves blending components of improvement of skills and personal resources. Coaching is individualized training guided by a coach to set goals, improve skills, and gain awareness in personal growth and development (McGonagle et al., 2020). As previously discussed, improved skill can increase self-efficacy and increased awareness can enable the PCP to know their limit, thereby allowing the restoration of balance and preventing burnout. The feasibility of providing all PCPs with coaching to prevent burnout would likely be limited due to financial and time restraints; however, a coaching application used on a smartphone or computer may be effective.

Primary prevention of burnout can be accomplished by ensuring PCPs have enduring personal resources that allow them to meet challenges, effectively cope with stress, and

problem solve with awareness, compassion, clarity, and without judgement. Personal resources can be enhanced through mindfulness-based techniques and coaching. In addition to enduring personal resources, ensuring PCPs have the skills to practice with competence and sustain self-efficacy is another mode of primary prevention of burnout.

Secondary Prevention

Early detection of burnout constitutes secondary prevention. Unfortunately, none of the studies in this ILR focused on secondary prevention of burnout, but they all utilized a burnout measurement tool to evaluate the effectiveness of the interventions. Early detection of burnout can be accomplished through screening and early symptom recognition (McWilliams, 2019). Many of the studies used different burnout measurement tools and, while a higher score in emotional exhaustion and depersonalization relates to higher burnout, there is no clarity regarding early burnout detection. Further research is needed to determine the best burnout screening tool to ensure early detection. Additionally, research should be conducted on the ideal frequency of burnout screening to effectively detect burnout but prevent survey or screening fatigue.

Recognition of the early signs and symptoms of burnout is also a type of secondary prevention. Leaders and colleagues should be trained to identify early burnout. By checking in with staff and colleagues, PCPs may detect signs of increasing distress and offer a safe outlet for peers to discuss symptom or stress in a non-judgmental space (Cheek, 2020). It is also important to normalize distress and improve psychological safety by including a routine emotional check-in (Cheek, 2020). Regular meetings and discussion groups with colleagues can offer opportunity to detect signs and symptoms of distress and to increase collegiality and peer support. Collegiality and peer support are involved in the burnout risk factor of

community and can reduce burnout (Maslach & Leiter, 2008). Both can be built by sharing knowledge, experience, and emotional and social support (Dyrbye et al., 2019). PCPs should take initiative to facilitate regular check-in meetings and to develop a strong support network as a means of secondary prevention. This may be more difficult for PCPs working in individual practices or rural areas but can be accomplished with technology.

Tertiary Prevention

Tertiary prevention involves actions taken to prevent deterioration or complications of a disease, such as depression, substance use, or suicidal ideation resulting from burnout (Fletcher, 2020). The aforementioned complications of burnout can be life-threatening; therefore, it is imperative that proven tertiary prevention methods are available to PCPs suffering from burnout.

Coaching, mindfulness-based techniques, and facilitated discussion groups were all effective in reducing burnout to varying degrees. Unfortunately, because different measurement tools and methods were used, it is difficult to determine if one method would be more effective than another at treating severe burnout. It would seem though, that coaching may be the most helpful of the interventions because it is highly individualized, confidential, and allows the opportunity for deeper self-reflection than may exist in a group setting (McGonagle et al., 2020). Furthermore, coaching can help the PCP develop and access their personal resources and decrease their vulnerability toward burnout (McGonagle et al., 2020).

Burnout is a devastating syndrome caused by chronic workplace stress. Many risk factors associated with PCP burnout are inevitable. However, some risk factors can be modified by the PCP, including self-care, community, and support—all of which can reduce

burnout scores. While we cannot firmly recommend strategies to prevent burnout in PCP working in the community setting, it is worth recognizing the importance of personal resources and their function in the management of stress and future threats. It is difficult to directly compare studies as they all used different interventions, various measurement scales and domains of burnout were utilized, few used a control group, and sample sizes varied greatly. Nevertheless, the findings presented in this ILR provide important insights into the prevention of burnout in PCPs and allow for the recommendation of strategies to prevent burnout in PCPs.

Recommendations

Based upon the findings of this ILR, recommendations to prevent PCP burnout have been generated. Current strategies to prevent PCP burnout have not been successful at preventing burnout, as evidenced by the high rates of burnout in PCPs (Bridgeman et al., 2018; CMA, 2018). Burnout is a complicated syndrome resulting from a confluence of variables and there is no simple individual directed strategy for PCPs to prevent burnout. The onus of burnout prevention is shared between the PCP and the organization and many burnout risk factors are inescapable. However, the thoughts, emotions, and behaviour patterns associated with provider-related workplace stress can be improved by the PCP themselves. Organization-directed strategies to prevent burnout are beyond the scope of this paper. The recommendations presented are drawn from the literature. All of the research was conducted outside of BC and, as such, the strategies can be useful for PCPs in other geographical locations. The recommendations are summarized in Table 4 and are listed beside their supporting literature, as discussed in the findings section of this paper.

Suggestions on how to implement recommendations in PCP practice can also be found in Table 4. The recommendations are also discussed in greater detail in the ensuing text.

Peer support and collegiality increase one's sense of community and are important burnout protective factors (Grow et al., 2019; Maslach & Leiter, 2008). A strong professional community can enhance one's self-efficacy (Grow et al., 2019; Maslach & Leiter, 2008) and social support can reduce stress (McGonagle et al., 2020). Collegiality is built through shared experiences and knowledge, as well as through informal connections (Dyrbye et al., 2019). Peer support and collegiality can be developed through facilitated PCP-discussion groups in which PCPs share experiences and discuss issues regarding clinical practice (West et al., 2014). Facilitated PCP-discussion groups can also offer PCPs informal opportunities to learn from each other (West et al., 2014). The PCP-discussion groups should occur regularly and focus on PCP-related issues, sharing interesting or complex cases, and peer feedback.

Developing and improving one's positive emotions can develop one's personal resources (McGonagle et al., 2020) and decrease negative affect (Wiederhold et al., 2018). Personal resources can empower the PCP to manage stress effectively and thus prevent burnout (Fredrickson, 2008; McGonagle et al., 2020). Mindfulness-based techniques and personal coaching are effective at improving one's personal resources and decreasing burnout rates (Fortney et al., 2013; McGonagle et al., 2020; Rees et al., 2020; Verweij et al., 2016).

Coaching allows the individual to determine their needs and develop an agenda that will help the individual to reach their own personal and professional goals (McGonagle et al., 2020). Coaching allows for deep personal reflection, awareness, and growth that may not be developed in group sessions (McGonagle et al., 2020). Coaching may not be feasible or

reasonable for all individual PCPs, but it may be an effective tertiary treatment for PCPs suffering from burnout.

Mindfulness-based techniques, on the other hand, can be widely utilized by all PCPs. Mindfulness can increase one's positive emotions and reduce stress (Fortney et al., 2013; McGonagle et al., 2020; Rees et al., 2020; Verweij et al., 2016; Wiederhold et al., 2018). MBSR programs were effective at reducing burnout rates and the abbreviated course produced sustained results of lowered burnout (Fortney et al., 2013). Thus, an abbreviated MBSR program should be offered as continuing education for PCP to reduce burnout.

Increased awareness gained through mindfulness-based programs allows the PCP to recognize and change their behavioural patterns to more positive behaviours (Verweij et al., 2016). The ability to practice self-care, set limits, and rest enables the PCP to overcome periods of stress overload and as a result, prevent burnout (Maslach & Leiter, 2008). PCPs should set limits within their schedule to allow themselves to practice self-care and rest.

Table 4

Recommendations

Recommendation	Work Life Risk Factor	Supporting Literature	Strategies to Incorporate into PCP Practice
Enhancing job competencies with a focus on PCP personal care, community, and topics that affect PCPs like patient care, medical mistakes, and complex cases	Community Reward	• facilitated physician discussion groups improved collegiality and peer support (West et al., 2014) • sharing in a non-judgemental environment can decrease emotional exhaustion (Wiederhold et al., 2018) • collaboration can represent how peers and colleagues value the PCP and can increase feelings of self efficacy (Maslach & Leiter, 2016)	• regular, scheduled colleague PCP discussion groups to discuss interesting or complex cases, issues faced by PCPs, and management strategies • discussion groups should be a safe place to share ideas, emotions, positive and negative outcomes, and feedback • discussion groups should facilitate check in with peers to assess risk of burnout
Interventions to improve well-being by increasing resilience, improving coping, or a combination of both through coaching and mindfulness-based techniques	Workload Community & Reward	• mindfulness-based interventions and coaching facilitated an increase in the PCP's awareness, allowing the PCP to recognize their limits, prioritize balance, and enhance personal resources (McGonagle et al., 2020; Rees at al., 2020; Verweij et al., 2016) • personal resources can help PCP meet daily challenges and overcome stressors, including PCP work-related stress McGonagle et al., 2020) • mindfulness-based interventions improved the PCP's relationships with colleagues and patients due to improved acceptance and compassion (Rees et al., 2020; Verweij et al., 2016)	• offer MBSR programs through continuing education courses and benefits highlighted at facilitated discussion groups • mindfulness should be practiced daily at home • clinical work should be viewed as an opportunity to improve mindfulness skills • self-care and rest should be encouraged and regularly scheduled • one-on-one coaching to focus on PCP individual needs, enhance personal growth and development—utilized as a tertiary prevention measure for PCPs currently suffering from high rate of burnout as it is not feasible or realistic to offer one-on-one coaching to all PCPs

Limitations and Future Direction

A significant limitation of this ILR is the generalizability of its findings to PCPs in British Columbia. None of the six primary studies were conducted in BC, or even in Canada. Three of the studies were conducted in the USA, and one each in Spain, the Netherlands, and Australia. Furthermore, five out of the six primary studies did not include NPs in their sample. While their findings represent the effects of burnout interventions on physicians, it is unclear if they adequately represent all PCPs, including NPs. As such, direct strategies to prevent burnout for PCPs in BC community primary care setting cannot be firmly recommended based entirely on this research.

Only two studies used a randomized control trial method, which is considered the gold standard to determine the effectiveness of an intervention. Additionally, many studies used convenience sampling which may have led to sample bias. Self-selected participants may have different burnout rates or qualities that influenced their desire to participate in a study aiming to improve burnout management. Future research that evaluates burnout interventions for all PCPs is needed. It is important for future research to be conducted with rigorous techniques, large sample sizes, control groups, and standardized measurements. This will produce reliable and generalizable results, permitting clear and proven strategies to be recommended. Future studies aimed at PCP-directed interventions should use the results of the pilot studies to refine effective burnout prevention strategies.

Conclusion

This study highlights the significance of burnout and PCP's need for burnout prevention strategies. There are multiple burnout risk factors, some that PCPs can control, but many they cannot. A key finding of this study is that PCPs can effectively manage work-related stress and possibly prevent burnout by improving their overall well-being. Mindfulness-based techniques and coaching interventions enhanced the PCP coping skills and increased resilience by way of increasing awareness and developing their personal resources. Enduring personal resources enable individuals to meet life's challenges, and to cope with and overcome stress. Personal resources are augmented by positive emotions. Coaching and mindfulness-based interventions were successful at developing positive emotions. Facilitated discussion groups increased PCP community. Building a strong support network can also help protect against burnout. It is important for PCPs to implement strategies to protect themselves from burnout because burnout can have negative consequences for the PCP and patient, hindering their ability to attain the highest standard of health and well-being (West et al., 2018).

References

American Medical Association. (2020). *Physician burnout: Improve physician satisfaction and patient outcomes.* Education Hub. https://edhub.ama-assn.org/steps-forward/module/2702509

American Psychological Association. (n.d.-a). Affect. In *APA dictionary of psychology.* Retrieved October 23, 2020, from https://dictionary.apa.org/affect

American Psychological Association. (n.d.-b). Negative affect. In *APA dictionary of psychology.* Retrieved October 23, 2020, from https://dictionary.apa.org/negative-affect

American Psychological Association. (n.d.-c). Positive affect. In *APA dictionary of psychology.* Retrieved October 23, 2020, from https://dictionary.apa.org/positive-affect

American Psychological Association. (n.d.-d). Coping. In *APA dictionary of psychology.* Retrieved December 16, 2020, from https://dictionary.apa.org/coping

American Psychological Association. (n.d.-e). Coping behavior. In *APA dictionary of psychology.* Retrieved December 16, 2020, from https://dictionary.apa.org/coping-behavior

American Psychological Association. (2012). *Building your resilience.* https://www.apa.org/topics/resilience

American Psychological Association. (2017, July). *What is cognitive behavioral therapy?* https://www.apa.org/ptsd-guideline/patients-and-families/cognitive-behavioral

Ansell, E. B., Rando, K., Tuit, K., Guarnaccia, J., & Sinha, R. (2012). Cumulative adversity and smaller gray matter volume in medial prefrontal, anterior cingulate, and insula regions. *Biological Psychiatry, 72*(1), 57-64. https://doi.org/10.1016/j.biopsych.2011.11.022

Barcons, C., Garcia, B., Sarri, C., Rodriguez, E., Cunillera, O., Parellada, N., Fernández, B., Alvarado, C. E., Barrio, C., Fleta, J. C., Ruiz, D., & Torrubia, R. (2019). Effectiveness of a multimodal training programme to improve general practitioners' burnout, job satisfaction and psychological well-being. *BMC Family Practice, 20,* Article 155. https://doi.org/10.1186/s12875-019-1036-2

Barua, B., & Moir, M. (2019). *Waiting your turn: Wait times for health care in Canada, 2019 report.* Fraser Institute. https://www.fraserinstitute.org/sites/default/files/waiting-your-turn-2019-execsum.pdf

Bezdek, K. G., & Telzer, E. H. (2017). Have no fear, the brain is here! How your brain responds to stress. *Frontiers for Young Minds, 5*, Article 71. https://doi.org/10.3389/frym.2017.00071

Branson, D. C. (2019). Vicarious trauma, themes in research, and terminology: A review of literature. *Traumatology, 25*(1), 2-10. https://doi.org/10.1037/trm0000161

Brashers, V. L., Jones, R. E., & Huether, S. E. (2014. Mechanisms of hormonal regulation. In K. L. McCance, & S. E. Huether (Eds.), *Pathophysiology: The biologic basis for disease in adults and children* (7th ed., pp. 689-716). Elsevier.

Bridgeman, P. J., Bridgeman, M. B., & Barone, J. (2018). Burnout syndrome among healthcare professionals. *American Journal of Health-System Pharmacy, 75*(3), 147-152. https://doi.org/10.2146/ajhp170460

British Columbia College of Nurses and Midwives. (2017). *Entry-level competencies for nurse practitioners in Canada.* https://www.bccnp.ca/becoming_a_nurse/Documents/NP_entry_level_competencies.pdf

Browne, A. J., Varcoe, C., Ford-Gilboe, M., Wathen, C. N., & EQUIP Research Team (2015). EQUIP healthcare: An overview of a multi-component intervention to enhance equity-oriented care in primary health care settings. *International Journal for Equity in Health, 14,* Article 152. https://doi.org/10.1186/s12939-015-0271-y

Canadian Institute for Health Information. (2019). *Physicians in Canada, 2019.* https://www.cihi.ca/sites/default/files/document/physicians-in-canada-report-en.pdf

Canadian Medical Association. (2018). *CMA national physician health survey: A national snapshot.* https://www.cma.ca/sites/default/files/2018-11/nph-survey-e.pdf

Canadian Medical Association. (2019). *Family medicine profile* [PowerPoint slides]. https://www.cma.ca/sites/default/files/2019-01/family-e.pdf

Canadian Nurses Association. (2020, June). *Nurse practitioners-Untapped resource.* https://cna-aiic.ca/-/media/cna/page-content/pdf-en/infographic_nurse-practitioners-untapped-resource.pdf?la=en&hash=E36EC8E8C06FE3F24A8529F039C5BD205D7C93AE

Centers for Disease Control and Prevention. (2019, October 23). *About chronic diseases.* https://www.cdc.gov/chronicdisease/about/index.htm

Cheek, J. (2020, August 5). *Stress first aid as a form of peer support.* The University of British Columbia. https://thischangedmypractice.com/stress-first-aid-as-a-form-of-peer-support/

Chow, Y., Masiak, J., Mikolajewska, E., Mikolajewski, D., Wójcik, G. M., Wallace, B., Eugene, A., & Olajossy, M. (2018). Limbic brain structures and burnout—A systematic review. *Advances in Medical Sciences, 63*(1), 192-198. https://doi.org/10.1016/j.advms.2017.11.004

Clayton, M. F., & McCance, K. L. (2014). Stress and disease. In K. L. McCance, & S. E. Huether (Eds.), *Pathophysiology: The biologic basis for disease in adults and children* (7th ed., pp. 338-362). Elsevier.

Cohen, S., Janicki-Deverts, D., & Miller, G. E. (2007). Psychological stress and disease. *Journal of the American Medical Association, 298*(14), 1685-1687. https://doi.org/10.1001/jama.298.14.1685

Cunningham, S. G., Brashers, V. L., & McCance, K. L. (2014). Structure and function of the cardiovascular and lymphatic systems. In K. L. McCance, & S. E. Huether (Eds.), *Pathophysiology: The biologic basis for disease in adults and children* (7th ed., pp. 1083-1128). Elsevier.

Delvin, M. -E., Braithwaite, S., Plaza, P. C. (2018). Canadian nurse practitioner's quest for identity: A philosophical perspective. *International Journal of Nursing Sciences, 5*(2), 110-114. https://doi.org/10.1016/j.ijnss.2018.03.001

Divisions of Family Practice. (2018). *NP backgrounder and FAQ.* https://divisionsbc.ca/sites/default/files/inline-files/NP%20Backgrounder%20and%20FAQ%20-%20Final%20181023_0.pdf

Divisions of Family Practice. (2020). *Frequently asked questions.* https://divisionsbc.ca/central-okanagan/family-physicians/capri-medical

Doctors of BC. (n.d.). *Scheduling and managing patient appointments.* https://www.doctorsofbc.ca/managing-your-practice/practice-supports/expanding-person-care-resources-physician-practices/scheduling-and-managing-patient-appointments

Doctors of BC. (2015, May). *Response to BC Ministry of Health policy papers.* https://www.doctorsofbc.ca/sites/default/files/final_doctors_of_bc_response_to_moh_policy_papers.pdf

Drummond, D. (2015, September 20). *The relationship between physician burnout, stress, and performance* [Video]. The Happy MD. https://www.thehappymd.com/blog/physician-burnout-stress-and-performance-video-training

Dyrbye, L. N., Shanafelt, T. D., Gill, P. R., Satele, D. V., & West, C. P. (2019). Effect of a professional coaching intervention on the well-being and distress of physicians: A pilot randomized clinical trial. *JAMA Internal Medicine, 179*(10), 1406-1414. https://doi.org/10.1001/jamainternmed.2019.2425

Edmonton Frail Scale. (n.d.). *What is the Edmonton Frail Scale?* https://edmontonfrailscale.org/new-index

Fletcher, G. S. (2020). Evidence-based approach to prevention. *UpToDate.* Retrieved September 27, 2020, from https://www.uptodate.com/contents/evidence-based-approach-to-prevention

Fortney, L., Luchterhand, C., Zakletskaia, L., Zgierska, A., & Rakel, D. (2013). Abbreviated mindfulness intervention for job satisfaction, quality of life, and compassion in primary care clinicians: A pilot study. *Annals of Family Medicine, 11*(5), 412-420. https://doi.org/10.1370/afm.1511

Fredrickson, B. L., Cohn, M. A., Coffey, K. A., Pek, J., & Finkel, S. M. (2008). Open hearts build lives: Positive emotions, induced through loving-kindness meditation, build consequential personal resources. *Journal of Personality and Social Psychology*, *95*(5), 1045–1062. https://doi.org/10.1037/a0013262

General Practice Services Committee. (2019). *The big picture: Transforming BC's health care system.* https://gpscbc.ca/sites/default/files/uploads/GPSC%20Infosheet%20PMHPCN%20Big%20Picture%202019.pdf

Gianoros, P. J., & Jennings, J. R. (2018). Host in the machine: A neurobiological perspective on psychological stress and cardiovascular disease. *American Psychologist, 73*(8), 1031–1044. https://doi.org/10.1037/amp0000232

Godoy, L. D., Rossignoli, M. T., Delfino-Pereira, P., Garcia-Cairasco, N., & Umeoka, E. H. (2018, July 3). A comprehensive overview on stress neurobiology: Basic concepts and clinical implications. *Frontiers in Behavioral Neuroscience, 12,* Article 127. https://doi.org/10.3389/fnbeh.2018.00127

Goetz, K., Mahnkopf, J., Kornitzky, A., & Steinäuser, J. (2018). Difficult medical encounters and job satisfaction-Results of a cross sectional study with general practitioners in Germany. *BMC Family Practice, 19*, Article 57. https://doi.org/10.1186/s12875-018-0747-0

Government of British Columbia. (n.d.). *Family doctors and other primary care providers.* https://www2.gov.bc.ca/gov/content/family-social-supports/seniors/health-safety/health-care-programs-and-services/family-doctors-and-other-primary-care-providers

Government of Canada. (2012). *About primary health care.* https://www.canada.ca/en/health-canada/services/primary-health-care/about-primary-health-care.html

Grow, H. M., McPhillips, H. A., & Batra, M. (2019). Understanding physician burnout. *Current Problems in Pediatric and Adolescent Health Care, 49*(11), Article 100656. https://doi.org/10.1016/j.cppeds.2019.100656

Health Match BC. (n.d.). *Nurse practitioner.* https://www.healthmatchbc.org/Handlers/ServeUploadedFile.aspx?FileId=31&FileType=CPF

HealthLink BC. (2020). *Urgent and primary care centres.* https://www.healthlinkbc.ca/services-and-resources/upcc

Hoff, T., Carabetta, S., & Collinson, G. E. (2019). Satisfaction, burnout, and turnover among nurse practitioners and physician assistants: A review of the empirical literature. *Medical Care Research and Review, 76*(1), 3-31. https://doi.org.prxy.lib.unbc.ca/10.1177/1077558717730157

Joanna Briggs Institute. (2020). *Critical appraisal tools.* https://joannabriggs.org/critical-appraisal-tools

Kim, L. Y., Rose, D. E., Ganz, D. A., Giannitrapani, K. F., Yano, E. M., Rubenstein, L. V., & Stockdale, S. E. (2020). Elements of the healthy work environment associated with lower primary care nurse burnout. *Nursing Outlook, 68*(1), 14-25. https://doi.org/10.1016/j.outlook.2019.06.018

Knight, C. (2019). Trauma informed practice and care: Implications for field instruction. *Clinical Social Work Journal, 47,* 78-89. https://doi.org/10.1007/s10615-018-0661-x

Kristensen, T. G., Borritz, M., Villadsen, E., & Christensen, K. B. (2005). The Copenhagen Burnout Inventory: A new tool for the assessment of burnout. *Work & Stress, 19*(3), 192-207. https://doi.org/10.1080/02678370500297720

Lall, M. D., Gaeta, T. J., Chung, A. S., Chinai, S. A., Garg, M., Husain, A., Kanter, C., Khandelwal, S., Rublee, C. S., Tabatabai, R. R., Takayesu, J. K., Zaher, M., & Himelfarb, N. T. (2019). Assessment of physician well-being, part two: Beyond burnout. *Western Journal of Emergency Medicine, 20*(2), 291-304. https://doi.org.10.5811/westjem.2019.1.39666

Langton, J. M., Wong, S. T., Burge, F., Choi, A., Ghaseminejad-Tafreshi, N., Johnston, S., Katz, A., Lavergne, R., Mooney, D., Peterson, S., & McGrail, K. (2020). Population segments as a tool for health care performance reporting: An exploratory study in the Canadian province of British Columbia. *BMC Family Practice, 21,* Article 98. https://doi.org/10.1186/s12875-020-01141-w

Lefton, C. (2012). Strengthening the workforce through meaningful recognition. *Nursing Economics, 30*(6), 331-338. https://go-gale-com.prxy.lib.unbc.ca/ps/i.do?p=AONE&u= unorthbc&id=GALE|A312508970&v=2.1&it=r&sid=summon

Loeb, D. F., Bayliss, E. A., Candrian, C., deGruy, F. V., & Binswanger, I. A. (2016). Primary care providers' experiences caring for complex patients in primary care: A qualitative study. *BMC Family Practice, 17,* Article 34. https://doi.org/10.1186/s12875-016-0433-z

Maslach, C., & Leiter, M. P. (2008). Early predictors of job burnout and engagement. *Journal of Applied Psychology, 93*(3), 498-512. https://doi.org/10.1037/0021-9010.93.3.498

Maslach, C., & Leiter, M. P. (2016). Understanding the burnout experience: Recent research and its implications for psychiatry. *World Psychiatry, 15*(2), 103-111. https://doi.org/10.1002/wps.20311

McCance, K. L. (2014). Cellular biology. In K. L. McCance & S. E. Huether (Eds.), *Pathophysiology: The biologic basis for disease in adults and children* (7th ed., pp. 1-48). Elsevier.

McGonagle, A. K., Schwab, L., Yahanda, N., Duskey, H., Gertz, N., Prior, L., Roy, M., Kriegel, G. (2020). Coaching for primary care physician well-being: A randomized trial and follow-up analysis. *Journal of Occupational Health Psychology, 25*(5), 297-314. https://doi.org/10.1037/ocp0000180

McWilliams, T. (2019). Mitigating physician burnout. *HSG Advisors.* https://hsgadvisors.com/wp-content/uploads/2019/07/Mitigating-Physician-BurnoutArticle.pdf

Mind Garden. (2019). *MBI: Human Services Survey.* https://www.mindgarden.com/314-mbi-human-services-survey

Nash, W. P. (2011). US Marine Corps and Navy combat and operational stress continuum model: A tool for leaders. In E. C. Ritchie (Ed.), *Combat and operational behavioral health* (pp. 107-119). Borden Institute. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.222.8091&rep=rep1&type=pdf

Nurses and Nurse Practitioners of British Columbia. (n.d.). *Nurse practitioners.* https://www.nnpbc.com/pdfs/portals/np/NNPBC-NP-Infographic.pdf

Olson, K., Sinsky, C., Rinne, S. T., Long, T., Vender, R., Mukherjee, S., Bennick, M., Linzer, M. (2019). Cross-sectional survey of workplace stressors associated with physician burnout measured by the Mini-Z and the Maslach Burnout Inventory. *Stress and Health, 35*(2), 157-175. https://doi-org.prxy.lib.unbc.ca/10.1002/smi.2849

Okoli, C. T. C., Seng, S., Otachi, J. K., Higgins, J. T., Lawrence, J., Lykins, A., & Bryant, E. (2020). A cross-sectional examination of factors associated with compassion satisfaction and compassion fatigue across healthcare workers in an academic medical centre. *International Journal of Mental Health Nursing, 29*(3), 476-487. https://doi.org/10.1111/inm.12682

Panagioti, M., Panagopoulou, E., Bower, P., Lewith, G., Kontopantelis, E., Chew-Graham, C., Dawson, S., van Marwijk, H., Geraghty, K., Esmail, A. (2017). *JAMA Internal Medicine, 177*(2), 195-205. https://doi.org/10.1001/jamainternmed.2016.7674

Peckham, A., Ho, J., & Marchildon. (2018). *Policy innovations in primary care across Canada: A rapid review prepared for the Canadian Foundation for Healthcare Improvement.* North American Observatory on Health Systems and Policies. https://ihpme.utoronto.ca/wp-content/uploads/2018/04/NAO-Rapid-Review-1_EN.pdf

Prodan-Bhalla, N., & Scott, L. (2016). *Primary care transformation in British Columbia: A new model to integrate nurse practitioners.* Nurse and Nurse Practitioners of British Columbia. https://bcnpa.org/wp-content/uploads/BCNPA_PHC_Model_FINAL-November-2-2016.pdf

Rees, C. S., Craigie, M. A., Slayter, S., Crawford, C., Bishop, M., McPhee, E., & Hegney, D. G. (2020). Pilot study of the effectiveness of a Mindful Self-Care and Resiliency program for rural doctors in Australia. *Australian Journal of Rural Health, 28*(1), 22-31. https://doi.org/10.1111/ajr.12570

Rider, E. A., Kurtz, S., Slade, D., Longmaid, H. E., Ho, M. -J., Pun, J. K. -h., Eggins, S., Branch, W. T. (2014). The International Charter for Human Values in Healthcare: An interprofessional global collaboration to enhance values and communication in healthcare. *Patient Education and Counseling, 96*(3), 273-280. https://doi.org/10.1016/j.pec.2014.06.017

Ritchie, V., O'Rourke, T., & Stahlke, S. (2018). Nurse practitioners' experiences of moral distress in the continuing care setting. *The Journal for Nurse Practitioners, 14*(10), 745-752. https://doi.org/10.1016/j.nurpra.2018.07.021

Rotenstein, L. S., Torre, M., Ramos, M. A., Rosales, R. C., Guille, C., Sen, S., & Mata, D. A. (2018). Prevalence of burnout among physicians: A systematic review. *Journal of the American Medical Association, 320*(11), 1131-1150. https://doi.org/10.1001/jama.2018.12777

Shanafelt, T. D., Balch, C. M., Dyrbye, L., Bechamps, G., Russell, T., Satele, D., Rummans, T., Swartz, K., Novotny, P. J., Sloan, J., & Oreskovich, M. R. (2011). Special report: Suicidal ideation among American surgeons. *Archives of Surgery, 146*(1), 54-62. https://doi.org/10.1001/archsurg.2010.292

Shanafelt, T. D., Boone, S., Tan, L., Dyrbye, L. N., Sotile, W., Satele, D., West, C. P., Sloan, J. Oreskovich, M. R. (2012). Burnout and satisfaction with work-life balance among US physicians relative to the general US population. *Archives of Internal Medicine, 172*(18), 1377-1385. https://doi.org10.1001/archinternmed.2012.3199

Sherwin, H. N., McKeown, M., Evans, M. F., & Bhattacharyya, O. K. (2013). The waiting room "wait": From annoyance to opportunity. *Canadian Family Physician, 59*(3), 479-481. https://www.cfp.ca/content/59/5/479.long

Sinclair, S., Raffin-Bouchal, S., Venturato, L., Mijovic-Kondejewski, J., & Smith-MacDonald, L. (2017, April). Compassion fatigue: A meta-narrative review of the healthcare literature. *International Journal of Nursing Studies, 69*, 9-24. https://doi.org/10.1016/j.ijnurstu.2017.01.003

Sinha, R. (2008). Chronic stress, drug use, and vulnerability to addiction. *Annals of the New York Academy of Sciences, 1141*(1), 105-130. https://doi.org/10.1196/annals.1441.030

Statistics Canada. (2019). *Health fact sheets: Primary health care providers, 2017.* https://www150.statcan.gc.ca/n1/pub/82-625-x/2019001/article/00001-eng.htm

Statistics Canada. (2018). *National occupational classification.* https://www23.statcan.gc.ca/imdb/p3VD.pl?Function=getVD&TVD=122372&CVD=122376&CPV=3112&CST=01012011&CLV=4&MLV=4

Strahler, J., Rohleder, N., & Wolf, J. M. (2014, January). Acute psychosocial stress induces differential short-term changes in catecholamine sensitivity of stimulated inflammatory cytokine production. *Brain, Behavior, and Immunity, 43*, 139-148. https://doi.org/10.1016/j.bbi.2014.07.014

Sugerman, R. A. (2014). Structure and function of the neurologic system. In K. L. McCance & S. E. Huether (Eds.), *Pathophysiology: The biologic basis for disease in adults and children* (7th ed., pp. 447-483). Elsevier.

Takahashi, L. K. (2014). Neurobiology of schizophrenia, mood disorders, and anxiety disorders. In K. L. McCance & S. E. Huether (Eds.), *Pathophysiology: The biologic basis for disease in adults and children* (7th ed., pp. 641-659). Elsevier.

van Weel, C., & Kidd, M. R. (2018). Why strengthening primary health care is essential to achieving universal health coverage. *Canadian Medical Association Journal, 190*(15), E463-E466. https://doi.org/10.1503/cmaj.170784

Verweij, H., Waumans, R. C., Smeijers, D., Lucassen, P. L. B. J., Donders, A. R. T., van der Horst, H. E., & Speckens, A. E. M. (2016). Mindfulness-based stress reduction for GPs: Results of a controlled mixed methods pilot study in Dutch primary care. *British Journal of General Practice, 66*(643), e99–e105. https://doi.org/10.3399/bjgp16X683497

West, C. P., Dyrbye, L. N., Rabatin, J. T., Call, T. G., Davidson, J. H., Multari, A., Romanski, S. A., Henriksen Hellyer, J. M., Sloan, J. A., & Shanafelt, T. D. (2014). Intervention to promote physician well-being, job satisfaction, and professionalism: A randomized clinical trial. *JAMA Internal Medicine, 174*(4), 527-533. https://doi.org/10.1001/jamainternmed.2013.14387

West, C. P., Dyrbye, L. N., & Shanafelt, T. D. (2018). Physician burnout: Contributors, consequences and solutions. *Journal of Internal Medicine, 283*(6), 516-529. https://doi.org/10.1111/joim.12752

Whittemore, R., & Knafl, K. (2005). The integrative review: Updated methodology. *Journal of Advanced nursing, 52*(5), 546-553. https://doi.org/10.1111/j.1365-2648.2005.03621.x

Whitson, H. E., & Boyd, C. M. (2020). Managing multiple comorbidities. *UpToDate.* Retrieved November 23, 2020, from https://www.uptodate.com/contents/managing-multiple-comorbidities

Wiederhold, B. K., Cipresso, P., Pizzioli, D., Wiederhold, M., & Riva, G. (2018). Intervention for physician burnout: A systematic review. *Open Medicine,* 13(1), 253-263. https://doi.org/10.1515/med-2018-0039

Wister, A., O'Dea, E., & Fyffe, I. (2019). *Fact book on aging in B.C. and Canada. https://cnpea.ca/images/september-15-factbook.pdf*

Work BC. (2020). *General practitioners and family physicians.* https://www.workbc.ca/careers/3112

World Health Organization. (2018, October). *A vision for primary health care in the 21st century: Towards universal health coverage and the sustainable development goals.* https://www.who.int/docs/default-source/primary-health/vision.pdf

World Health Organization. (2019, May 28). *Burn-out an "occupational phenomenon": International Classification of Diseases.* https://www.who.int/mental_health/evidence/burn-out/en/

World Health Organization. (2020). *Health promotion and disease prevention.* http://www.emro.who.int/about-who/public-health-functions/health-promotion-disease-prevention.html

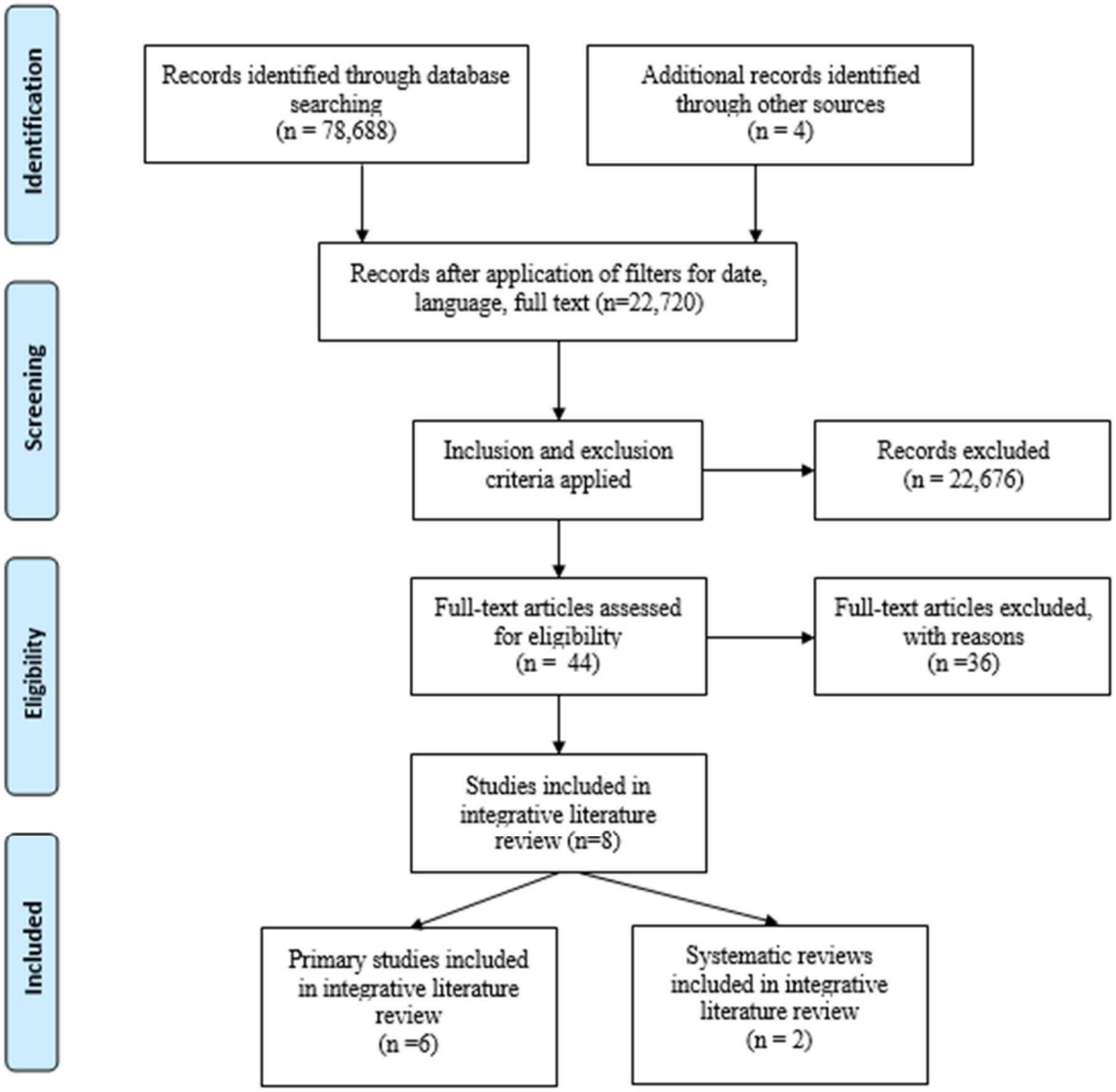
Yaribeygi, H., Panahi, Y., Sahraei, H., Johnston, T. P., & Sahebkar, A. (2017, July 21). The impact of stress on body function: A review. *EXCLI Journal, 16*, 1057-1072. https://doi.org/10.17179/excli2017-480

Zhao, J. -L., Li, X. -H., & Shields, J. (2019). Managing job burnout: The effects of emotion-regulation ability, emotional labor, and positive and negative affect at work. *International Journal of Stress Management, 26*(3), 315-320. http://dx.doi.org.prxy.lib.unbc.ca/10.1037/str0000101

Zhang, Y-Y., Han, W-L. H., Qin, W., Yin, H-X., Zhang, C-F., Kong, C., & Wang, Y-L. (2018). Extent of compassion satisfaction, compassion fatigue and burnout in nursing: A meta-analysis. *Journal of Nursing Management, 26*(7), 810-819. https://doi.org/10.1111/jonm.12589

Appendix A

Literature Search Flow Diagram



Appendix B

Literature Review Matrix

Primary Studies

Author, Year, Title	Purpose	Study Design, Methodology, and Methods	Sampling	Data Analysis	Key Findings	Strengths and Limitations; JBI rating
Barcons, Garcia, Sarri, Rodriguez, Cunillera, Parellada, Fernández, Alvarado, Barrio, Fleta, Ruiz, & Torrubia (2019) *Effectiveness of a multimodal training programme to improve general practitioners' burnout, job satisfaction and psychological well-being*	To determine the effectiveness of a multimodal training programme (MTP) with an Integrated Brief Systemic Therapy (IBST) approach for GPs to improve their management of mental-health patients To determine if the same program could be useful to improve the GPs management of their own burnout, job	Study design: Mixed methods Methodology: Quasi-experimental Methods: Control group completed routine programme for primary care (Mental-health support programme for primary care) Experimental group completed routine programme for primary care and 9-week MTP. MTP was structured as continuing education course with psycho-educational activities Pre- and post-intervention measurements in both control and experimental group using self-reported psychometric measures: socio-demographics, psycho-pharmacology use,	GPs working in public primary-care units in Barcelona, Spain between January 2016, and February 2017 Non-randomized (each group was composed of GPs from 2 primary care services) Control group consisted of 18 GPs from 1 primary care service Experimental group (N= 20) consisted of GPs from the other primary care service	Statistical analysis completed via software package. Control and experimental group baseline and post-intervention measurements were compared. Unadjusted linear mixed-effects models used as a bivariate analysis to account for longitudinal data assessments, complex inter-group interactions, regressing different outcomes for experimental group, follow-up, and their interaction. Differences	Opinions and attitudes on mental illness worsened for both groups. No significant changes in overall job satisfaction detected between groups. The control group was observed to have a decrease in satisfaction at work and in interpersonal relationship with peers, but they were not considered statistically significant. No significant statistical differences in total burnout or any of the 3 domains of the MBI observed. Statistically significant decrease observed in the Total Brief Psychiatric Rating Scale in experimental group. No	Strengths: Conducted in clinical practice increases relevance to real-life pressures Longitudinal design illustrates sustainability of the improvements Limitations: small sample size limits statistical significance and generalizability. Clinical interview may cause response bias. Treatment integrity and commitment were not supervised or assessed; thus, it is unknown if MTP was delivered effectively.

	satisfaction, and psychological well-being	Struening and Cohen's Opinion about Mental Illness questionnaire, Font-Roja Job Satisfaction Questionnaire, and MBI. Hetero-applied psychometric measures via Brief Psychiatric Rating Scale		within the groups were also analyzed.	change seen in control group. Psycho-pharmacology use dropped in both groups, especially seen in regard to benzodiazepine use	JBI critical appraisal checklist for quasi-experimental studies: 8/9
Fortney, Luchterhand, Zakletskaia, Zgierska, & Rakel (2013) *Abbreviated mindfulness intervention for job satisfaction, quality of life, and compassion in primary care clinicians: A pilot study*	To investigate whether abbreviated mindfulness intervention could decrease burnout, increase job satisfaction, quality of life, and compassion among primary care clinicians	Study design: quantitative Methodology: uncontrolled exploratory study Methods: All participants received the intervention—an abbreviated 8-week MBSR program. Program was 18 hrs, delivered in 15-person groups over a weekend, and included 2 2-hour follow-up sessions. Participants encouraged to practice mindfulness 10-20 minutes daily. 4 surveys completed: at pre-intervention, 2 days post-intervention, 8 weeks post-intervention, and 9 months post-intervention. Each survey used 5 validated measures to assess job satisfaction, quality of life, and compassion: MBI, Depression Anxiety Stress Scale, 14-item Resilience Scale, and Santa Clara Brief Compassion Scale. Surveys	30 primary care clinicians from the University of Wisconsin-Madison departments of family medicine, internal medicine, and pediatrics. Clinicians included medical doctor or doctor of osteopathy, nurse practitioner, or physician assistant who worked at least 50% time in direct patient care. 23 clinicians completed all 4 surveys.	Descriptive analysis used to describe demographics, individual variables, and study outcomes. Study outcomes were analyzed using linear mixed effects models to estimate change in values of the repeated individual measures. Values for outcomes on baseline survey were compared with subsequent surveys; thus, allowing changes in outcome measures to be seen and to determine if changes were sustainable over	MBI scores showed respondents had significant decreases from baseline in emotional exhaustion and depersonalizations scores (i.e., negative aspects of burnout improved) and changes were sustained over 9-month follow-up period. Respondents also increased their personal accomplishment scores on all follow-up surveys. Improvements in depression scores on all follow-up surveys, anxiety scores on surveys 2 and 4, and stress scores on surveys 3 and 4 as measured by Depression Anxiety Stress Scales. Perceived stress scale showed improved on all follow-up surveys. No significant changes to resilience or compassion	Strengths: congruency between purpose of the study, methods, and findings. Clear explanation of the abbreviated MBSR program, methods, reasoning for measurements, and analyses. Limitations: lack of control group means it is not known if improvements were due to mindfulness intervention or related to normalizing trends that occur over time. Small, self-selected sample size limits generalizability. Reports there is debate about the

		were completed anonymously online.		the 9-month follow-up period. Analyses conducted with SAS version 9.1 for Linux software.	as assessed by Resilience Scale and Santa Clara Brief Compassion Scale	effects of mindfulness potentially being influenced by the group effect versus the actual practice of mindfulness JBI critical appraisal checklist for analytical cross-sectional studies score: 7/8
McGonagle, Schwab, Yahanda, Duskey, Gertz, Prior, Roy, & Kriegel (2020) *Coaching for primary care physician well-being: A randomized trial and follow-up analysis*	Hypothesis 1: From baseline values, PCPs will report decreased levels of burnout, stress, and turnover intentions; and increased levels of work engagement, psychological capital, compassion, self-efficacy, and job-satisfaction following participation in a coaching group and	Study design: quantitative Theoretical framework: positive psychology Methods: participants in the experimental group received 6 coaching sessions over a 3-month period. The first session was face-to-face and focused on creating coaching alliance, assessing strengths, and building an action plan. Remainder of sessions were conducted on the phone and focused on specific positive emotions, engagement, meaning, positive relationships, and achievement model topics and tools, based on action plan. Participants chose which tools used from positive psychology coaching exercises and	Participants recruited from four medical practices in northeastern United States. Criteria for participation: working at least 50% of time as PCP, having 25 years or less experience, and not planning on retiring in the next 2 years 59 eligible participants Experimental group determined by coin flip. 26 analyzed for	G*Power software used to determine required sample size Baseline outcome measures and demographics were evaluated to ensure randomization Hypothesis 1 testing: repeated measures analysis of variance tests for randomized control trials done to determine group and time outcomes Hypothesis 2 testing: Variables	Control group had higher levels of job satisfaction on baseline measure Statistically significant improvement in experimental group for burnout, engagement, psychological capital, and job satisfaction. No statistically significant improvement in experimental group for job stress, turnover intentions, compassion, or job self-efficacy Improvements to scores of burnout, job stress, engagement, psychological capital, job satisfaction, and job self-efficacy were noted from pre-intervention to post-	Strengths: clear and congruent purpose, methods, and findings. Unambiguous discussion about which hypotheses were supported and which were not Randomized control trial Limitations: Use of participant self-reported outcome measures was convenient but does not allow for physiological stress measures and health indicators, nor reports from

	compared to control group. Hypothesis 2: The changes noted in hypothesis 1 will be remain stable for 3- and 6-month following coaching	included: Values in Action Inventory, Character Strengths Assessment, Using Strengths in New Ways, Best Self, Mindfulness Reflections, Reframing, Social Flow, and Gratitude Reflections. Final session assessed progress, discussed sustaining progress, and completed gratitude reflection Control group received no coaching. Same measurement tools used to assess control group and experimental group for burnout (MBI), work stress (Stress in General Scale), turnover intentions (Turnover Intentions Scale), engagement (Engagement Scale), psychological capital (Psychological Capital Questionnaire), compassion (Santa Clara Brief Compassion Scale), job self-efficacy (Job Self-Efficacy Scale), job satisfaction, coaching fidelity (questions to assess consistency with coaching framework) Measurement completed online pre-intervention, immediate post-intervention,	hypothesis 1, 21 analyzed for hypothesis 2. Control group determined by coin flip. 24 analyzed for hypothesis 1, 18 analyzed for hypothesis 2. 72% of participants were female 42 yrs. old avg age Average of 11 years of experience as primary care physician	that had improved from baseline to post-coaching in the experimental group were measured using analysis of variance tests to compare baseline to immediate post-intervention 3 months post-intervention, and 6 months post-intervention Attrition analysis completed to determine if those who dropped out of study were different (in terms of demographics or baseline measures) from those who completed program	intervention and remained stable at 3- and 6-month surveys Compassion levels did not change from pre-intervention to immediate post-intervention, but did show improvement at 6-month post-intervention Statistically significant improvement for hypothesis 1: burnout, engagement, psychological capital, job satisfaction Statistically significant improvement for hypothesis 2: burnout, engagement, psychological capital, job satisfaction	coworkers, patients, or supervisors Coaching delivery could vary between participants Majority of participants were female (72%) Attrition could cause sample bias JBI critical appraisal tool for RCT 11/13

		3 months post-intervention, and 6 months post-intervention				
Rees, Craigie, Slayter, Crawford, Bishop, McPhee, & Hegney (2019) *Pilot study of the effectiveness of a Mindful Self-Care and Resiliency program for rural doctors in Australia*	To determine how effective Mindful Self-Care and Resiliency (MSCR) is at improving the well-being of rural doctors To determine the acceptability, feasibility, and sustainability of MSCR program in rural doctors	Study design: Sequential mixed methods Methodology: cohort Methods: Modified MSCR program. All participants had a 4-hour face-to-face session and 3 1-hour video-conference sessions on MSCR. Participants were attending a Resilience Building Retreat Baseline data was obtained immediately prior to intervention Repeat measures were done at 1-month post-intervention and a telephone interview was conducted Burnout was measured using the 10-item Burnout Measure Short Version, negative affect was measured using the Positive and Negative Affect Scale, subjective quality of life was measured using the WHO (Five) Well-being Index, and psychological strain was	Medical practitioners employed as a GP, hospital intern, or registrar in regional area in rural Queensland, Australia N=13 7 participants completed measures pre- and post-intervention and, of those 7, 4 completed the telephone interview Mean age: 40 10 male participants, 3 female participants 57% working as GPS Experience range from 1 year to 39 years	Changes in measures were examined using clinical significance and reliable change analysis Reliable Change Index was used to ensure accuracy Interviews were recorded and transcribed and Braun and Clarke method was used for qualitative data analysis	Baseline scores for burnout ranged from very low to very high. Post-intervention 4 doctors had improvement to burnout scores, 2 met criteria for reliable change. 3 had deteriorated, but with no reliable change criteria met. 6 participants had improvements in psychological strain and negative affect 4 participants had improvements in well-being but 2 had slight deterioration Qualitative themes: all participants discussed how work-related stress caused disengagement from work and how it negatively impacted job satisfaction Participants reported that their new knowledge of self-awareness, self-reflection, relaxation, self-care helped	Strengths: clear purpose and methods Good pilot study to demonstrate need for further research Limitations: small number of participants and high attrition rate. Study not controlled, difficult to draw conclusions on effectiveness of intervention JBI critical appraisal tool for quasi-experimental studies score: 6/9

		measured using the General Health Questionnaire-12	71% worked full-time		interactions, especially with their patients Participants hesitant to incorporate use of a "buddy" for support Follow-up sessions were helpful to reiterate new skills for those who were able to attend, but some found it difficult to accommodate	
Verweij, Waumans, Smeijers, Lucassen, Donders, van der Horst, & Speckens (2015) *Mindfulness-based stress reduction for GPs: Results of a controlled mixed methods pilot study in Dutch primary care*	To examine the effectiveness and feasibility of MBSR on burnout, empathy, and work-related well-being in GPs	Study design: mixed methods Methodology: non-randomized control Methods: intervention group participated in MBSR training and then a 1-day silent retreat. All participants encouraged to practice for 30-45 minutes daily Control group was put on a waitlist for MBSR training Online self-report questionnaires were completed by control and intervention groups pre- and post-intervention. Measurements for burnout (Utrecht Burnout Scale for	GP trainers associated with 2 Dutch training hospitals invited to participate in study (trainer =experienced GP) GPs chose which date they could attend MBSR training (autumn or spring), group participating in first term was the intervention group and those participating in second term were control group Intervention group (n=23); 70% male, 30%	Quantitative analysis: Differences between group demographics and pre- and post-tests were analyzed using linear mixed models in SPSS version 20.0 software Qualitative analysis: recordings and evaluation forms were transcribed and analyzed via Braun and Clarke's thematic analysis	Quantitative results: Baseline differences between intervention and control groups (higher levels of burnout and lower levels of engagement and mindfulness skills in intervention group compared to control group) Intervention group had more improvement in depersonalization than control group (moderate effect) Dedication and mindfulness increased significantly in MBSR group (moderate effect)	Strengths: congruency between aim, methods, and findings Limitations: not randomized-baseline differences between intervention group and control group Small sample size Self-selected participation No longitudinal follow up to determine if changes were sustained

		Contactual Occupations =validated Dutch version of MBI), work engagement (validated Utrecht Work Engagement Scale), empathy (Jefferson Scale of Empathy), and mindfulness (Five Facet Mindfulness Questionnaire) were used Qualitative data was collected during the last MBSR session through interviews or evaluation forms	female; 23 years in practice Control group (n=20); 60% male, 40% female; 26 years in practice		Qualitative results: six themes emerged—increased awareness, ability to recognize own behavioural patterns, ability to change own behavioural patterns, increased physical and mental well-being, increased self-acceptance and compassion, increased acceptance, and compassion towards others	JBI checklist for quasi-experimental studies 8/9
West, Dyrbye, Rabatin, Call, Davidson, Multari, Romanski, Hellyer, Sloan, & Shanafelt (2014) *Intervention to promote physician well-being, job satisfaction, and professionalism: A randomized clinical trial*	To test hypothesis that a facilitated physician small-group curriculum intervention would improve well-being Well-being in reference to meaning in work, empowerment and engagement in work, burnout, symptoms of depression,	Study design: Quantitative Methodology: randomized clinical trial Methods: Trial volunteers randomly placed in control or intervention groups Intervention group participants engaged in facilitated small-group (8-10 participants) curriculum for 1 hour every 2 weeks for 9 months Curriculum included self, patient, and balance modules and incorporated meaning in work, personal and professional balance,	90 physicians within Department of Medicine at Mayo Clinic in Rochester, MN volunteered to participate and were randomly divided into control and intervention groups 42% practiced general medicine 33% women 350 Non-trial participants	Changes in well-being measurements from study baseline to study end and 3- month and 12-month post-intervention were analyzed using intent-to-treat principles Statistical analyses performed using SAS version 9.2 software	Comparisons with intervention group and controlled group: empowerment, meaning, and engagement with work increased significantly more for those in intervention group vs control group and the difference was sustained at 12-months post-intervention Small improvements to burnout and emotional exhaustion Large decreases to depersonalization rates in intervention arm vs control arm, and differences sustained at	Strengths: congruency between study aims, methods, and findings 1 hour of time every 2 weeks seems feasible Limitations: sample size of randomized trial was somewhat small and was comprised of self-selected volunteers All physicians were from single

	quality of life, and job satisfaction	medical mistakes, community, caring for patients, and topics relevant to practicing physicians Control group participants received 1 hour of protected time every 2 weeks to use in any manner Validated instruments used to measure: job satisfaction (Job Satisfaction Scale); empowerment, engagement, and meaning at work (Empowerment at Work Scale); burnout (MBI); stress (Perceived Stress Scale); depression screening (2-question approach by Spitzer); empathy (Jefferson Scale of Physician Empathy); and quality of life and fatigue (measured by single-item assessment questions) Abbreviated surveys used in non-trial cohort to measure meaning at work, depersonalization, emotional exhaustion, and quality of life			12-months post-intervention Small, but statistically significant improvements in mental and physical well-being, fatigue, and empathy No statistically significant differences in stress, depression symptoms, quality of life, or job satisfaction Unstructured protected time was beneficial, but advantages of small-group curriculum was greater, and benefits were sustained longer Comparisons with non-trial cohort: burnout rates dropped significantly in trial intervention arm, declined slightly in control arm, and increased in non-trial cohort Small group curriculum focused on refection, self-awareness, mindfulness, communication building skills to promote connectedness and	academic medical center JBI critical appraisal tool for randomized control trials score: 9/13

					meaning in work; therefore, interventions designed to address other elements of distress may be needed to cause improvements in other domains	

Systematic Reviews

Review Authors, Date, & Title	Aim	Type of Review, Methods, & Quality Assessment	Types of Studies, Dates, & Total Participants	Context	Key Findings	Strengths & Limitations
Panagioti, Panagopoulou, Bower, Lewith, Kontopantelis, Chew-Graham, Dawson, van Marwijk, Geraghty, & Esmail (2016) *Controlled interventions to reduce burnout in physicians: A systematic review and meta-analysis*	-assess effectiveness of interventions to reduce burnout -examine what types of interventions are most effective (physician directed + organization directed) -examine differences in effect of interventions in different settings (primary care +	-systematic review -Preferred Reporting Items for Systematic Reviews and Meta-Analyses Quality assessment not indicated	Quantitative, randomized control trials and controlled studies 2005-2016 1550 physicians most used MBI to assess severity of burnout; 12 focused on physician-directed interventions	19 studies included in analysis 7 studies about physicians in primary care, 10 studies with physicians in secondary care; 2 studies with mixed sample of physicians 12 studies were physician-directed interventions (mindfulness-based stress reduction techniques, educational interventions targeting confidence and communication, exercise, or a combination of all)	Small, but statistically significant reductions in burnout were associated with physician-directed interventions Organization-directed interventions were associated with medium, statistically significant reductions in burnout Interventions in primary care resulted in small to medium reductions in burnout Interventions on burnout were more effective on more experienced	Strengths: Clear aims, methods, and findings Large number of studies identified and meta-analyzed allows differences between interventions to be more reliably estimated Narrowed focus on controlled interventions on physician burnout allowed the study to concentrate interventions and their effectiveness

Review Authors, Date, & Title	Aim	Type of Review, Methods, & Quality Assessment	Types of Studies, Dates, & Total Participants	Context	Key Findings	Strengths & Limitations
	secondary care) and in physicians with different levels of experience			5 studies focused on organization-directed interventions Duration of interventions 2 weeks-9 months with follow-up assessments ranging from 1 day to 18-months post-intervention 12 studies focused on physicians with 5 or more years of experience, 7 studies on new physicians 8 conducted in USA, 4 in Europe, 3 in Australia, 2 in Canada, 1 in Argentina, 1 in Israel	physicians compared to newer physicians	Limitations and cautions regarding findings discussed unambiguously Quality of included studies not rated JBI critical appraisal checklist for systematic reviews and research synthesis 9/11
Wiederhold, Cipresso, Pizzioli, Wiederhold, Riva (2018) *Intervention for physician burnout: A systematic review*	To identify and summarize previous research on interventions for physician burnout	Systematic review Preferred Reporting for Systematic Reviews and Meta-Analysis Quality of studies not indicated	Quantitative studies; noncontrolled prospective (1), randomized control trial (4), non-randomized controlled trial (5), cohort study (1), correlational (1), elective team-based	13 studies included in the review Articles focused on burnout treatment for physicians and only included those that used the MBI scale to assess burnout Interventions included self-administered psycho-therapeutic tool (1), art therapy and cognitive behavioural therapy (1),	Studies focused on interventions for physician burnout are limited, results are fragmented, and methodological weaknesses found Personality characteristics and different demographic characteristics may play role in burnout and could be useful in future research to develop individualized interventions	Strengths: congruency between aim, methods, and findings Acknowledges that the variety of previous studies and approaches makes comparison difficult Limitations: quality of studies not indicated

Review Authors, Date, & Title	Aim	Type of Review, Methods, & Quality Assessment	Types of Studies, Dates, & Total Participants	Context	Key Findings	Strengths & Limitations
			(1), and longitudinal assessment (1) Dates of studies: 1991-2016 Total participants: 5,567	team-based intervention (1), counselling intervention (1), communication skills (2), stress management and communication training (1), stress management (1), Respiratory One Method (1), Incentivized exercise program (1), organizational leadership program (1), interventional study (1), and changes in physicians' professional effort (1) Duration of studies not discussed Location of studies not discussed	Cognitive-behavioural therapy (CBT) approach is effective treatment for stress-related mood disorders, 2 studies focused on CBT and 1 reported improvement on emotional exhaustion and both improved burnout Workshops to improve communication skills did not improve burnout Counselling therapy included the factor of reduced work hours and resulted in lower emotional exhaustion Mindfulness-based programs reduced burnout Non-judgemental support groups lowered emotional exhaustion compared to control group and may stabilize effects of burnout Self-administered psychotherapy was not effective	Included studies limited to those that used MBI JBI critical appraisal checklist for systematic reviews and research synthesis: 8/11